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INVESTIGATION OF CONCENTRATION OF ECONOMIC POWER

HEARINGS

BEFORE THE

TEMPORARY NATIONAL ECONOMIC COMMITTEE CONGRESS OF THE UNITED STATES

SEVENTY-SIXTH CONGRESS

SECOND SESSION

PURSUANT TO

Public Resolution No. 113 **(Seventy-fifth Congress)**

AUTHORIZING AND DIRECTING A SELECT COMMITTEE TO
MAKE A FULL AND COMPLETE STUDY AND INVESTIGA-
TION WITH RESPECT TO THE CONCENTRATION OF
ECONOMIC POWER IN, AND FINANCIAL CONTROL
OVER, PRODUCTION AND DISTRIBUTION
OF GOODS AND SERVICES

PART 14

PETROLEUM INDUSTRY **SECTION I**

SEPTEMBER 25, 26, 27, 28, 29, AND 30, 1939

Printed for the use of the Temporary National Economic Committee



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II

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 Grisell, T. O., general sales manager, Kendall Refining Co., Bradford, Pa.
 Knox, Robert C., attorney, El Dorado, Ark.
 Orvis, Eugene L., attorney, Jersey City, N. Y.²
 Ramsdell, Arthur W., New York City.
 Reitz, W. R., secretary, Quaker State Oil Refining Co., Oil City, Pa.
 Shatford, John E., El Dorado, Ark.
 Suhr, Charles L., chairman of the board, The Pennzoil Co., Oil City, Pa.
 Swensrud, Sidney A., vice president, The Standard Oil Co. of Ohio, Cleveland, Ohio.
 Thompson, Hon. Ernest O., member, Texas Railroad Commission, Austin, Tex.
 Wilson, Robert E., president, Pan American Petroleum & Transport Co., New York City.

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Testimony of—

Anderson, H. H., vice president, Shell Oil Co., St. Louis, Mo.
 Craft, Arnold W., manager, Craft Oil Co., Avoca, Pa.
 Crouthamel, Henry A., executive secretary, Maryland Association of Petroleum Retailers, Inc., Baltimore, Md.
 Culver, Irving B., sales manager, National Oil & Supply Co., Newark, N. J.
 Hadlick, Paul E., secretary, National Oil Marketers Association, Washington, D. C.
 Hall, Edwin S., senior counsel, Standard Oil Co. of New Jersey, New York City.
 Hartley, L. A., secretary, Petroleum Retailers Association, Kansas City, Mo.
 Hewett, A. W., president, Petroleum Retailers Association, Kansas City, Mo.
 Horton, James A., chief examiner, Federal Trade Commission.
 Ingram, George B., president, New Deal Oil Co., Canton, Ohio.
 Klein, Harry T., general counsel, The Texas Co., New York City.
 Orvis, Eugene L., attorney, Jersey City, N. J.
 Ruark, B. W., general manager, Motor and Equipment Wholesalers Association, Chicago, Ill.
 Scott, Lester S., manager, Loughborough Oil Co., Washington, D. C.

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Cattell, Roscoe E., chief engineer, Petroleum and Natural Gas Division of the Technologic Branch, United States Bureau of Mines.
 Del Sesto, Christopher, special assistant to the Attorney General, Department of Justice.
 Farish, William S., president, Standard Oil Co. (New Jersey), New York City.
 Ferguson, W. H., vice president, Continental Oil Co., Denver, Colo.
 La Fleische, Pierre, Casper, Wyo.
 Loos, Mrs. Mary C., office manager, National Association of Petroleum Retailers, Milwaukee, Wis.
 McLaughlin, Glenn E., assistant professor of economics, Hunter College, New York City.
 Schuh, Wilbur R., chairman, board of directors, National Association of Petroleum Retailers, Milwaukee, Wis.
 Soyster, Hale B., Chief of the Oil and Gas Leasing Division of the Conservation Branch, United States Geological Survey.
 Stabler, Herman, Chief of the Conservation Branch, United States Geological Survey.
 Watkins, Ralph J., economic adviser, National Resources Planning Board, Washington, D. C.
 White, Alfred G., chief economist, Petroleum Economics Division, Bureau of Mines, Washington, D. C.

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INVESTIGATION OF CONCENTRATION OF ECONOMIC POWER

MONDAY, SEPTEMBER 25, 1939

UNITED STATES SENATE,
TEMPORARY NATIONAL ECONOMIC COMMITTEE,
Washington, D. C.

The committee met at 10:40 a. m. pursuant to the call of the chairman, in the Caucus Room, Senate Office Building, Senator Joseph C. O'Mahoney presiding.

Present: Senator O'Mahoney (chairman); Representative Williams; Messrs. Arnold, O'Connell, Henderson, and Brackett.

Present also: Willis Ballinger, representing Federal Trade Commission; Clarence Avildsen and Robert McConnell, representing Department of Commerce; Hugh B. Cox, special assistant to the Attorney General, Department of Justice; W. B. Watson Snyder, special assistant to the Attorney General; Christopher Del Sesto, special assistant to the Attorney General; F. E. Berquist, special assistant to the Attorney General; Roy C. Cook, and Leo Finn, Department of Justice.

STATEMENT BY SENATOR O'MAHONEY

The CHAIRMAN. The committee will please come to order. Heretofore the public hearings which have been held by this committee have been conducted by one or another of the Government agencies represented on the committee. In each instance the material presented has been gathered by representatives of the committee, either by active research in the field or by study of material already in the possession of Government bureaus or departments. Today we open a new type of hearing.

The facts and opinions now presented have been selected not by the committee or any of the agencies represented on the committee, but by spokesmen of the oil industry who have graciously accepted our invitation to businessmen to present the story of the Nation's economic problem from the point of view of business and industry itself. As the chairman announced last April, Mr. Axtell B. Byles, President of the American Petroleum Institute, which is the largest trade association in the petroleum industry, was good enough to undertake on behalf of that organization to procure the cooperation of various experts and executives in setting forth the story of petroleum as these men see it.

As indicated at the time, these persons were given the opportunity to present prepared statements to the committee. The statements were then examined by members of our staff and a list of questions suggested by the statements was then in turn submitted by the com-

mittee to the prospective witnesses. All of this was for the purpose of enabling both the members of the committee and the representatives of industry to discuss the problems in a fully informed manner. It was also announced that the committee would not confine itself to members of the American Petroleum Institute, but would in turn call on other witnesses in order to make certain that an adequate presentation is made of all available information with respect to the manner in which the oil industry is conducted.

ECONOMIC IMPORTANCE OF THE STUDY

The CHAIRMAN. The committee also submitted questionnaires to corporations engaged in this industry in an effort to elicit pertinent information that would be helpful in pursuing the inquiry. To those who have so fully cooperated with the committee in furnishing the information thus sought, a contribution which the committee recognizes was not without its difficulties, and for the labors involved in the presentation of the statements which have been filed, I desire to express the gratitude of the committee. We feel that this labor will not have been in vain and that the result of these hearings will be beneficial to the people of the United States. It is appropriate to observe here that the problem of economic adjustment which this committee is studying is one that demands the best efforts of all, wherever they may be placed, in government or in business. It cannot be too often repeated that unemployment—unemployment of capital as well as unemployment of men—is the central question mark that rises before us all.

We cannot have completely satisfactory markets for the products of industry unless we find ways to guarantee the free and full investment of capital and the free and full employment of labor. This is the task which was assigned to this committee. To what extent we shall be helpful in performing it remains to be seen, but the circumstances in which we now find ourselves prompt me to say here that the importance of the task is only emphasized; it is not minimized by the international situation.

The European war itself is one result of the failure to find economic security in the Old World, and it must be clear that the outbreak of the conflict there only makes more necessary our own determination to learn the facts which lie at the root of the economic problem. It will be recalled that the legislation which called this committee into existence laid upon it the duty not only to study the concentration of economic power in the production and distribution of goods and services generally, but to study particularly the effect of the existing price system, and the price policies of industry upon the general level of trade, upon employment, upon long-term profits, and upon consumption; and also the effect of government policies upon competition, price levels, unemployment, profits, and consumption. This instruction was in accordance with the recommendation made by the President in his message to Congress of April 29, 1938.

The task of the Committee with respect to prices becomes more important if that were possible, as a result of the conflict in Europe. Already fears of profiteering have been expressed. That artificial and unjust increases of prices make more difficult the task of economic readjustment is of course apparent to all. Profiteering in time

of war accentuates the evil effect of price exploitation in time of peace, and those who give way to the temptation to seize a quick profit at the expense of the consumption by raising prices when costs have not increased, make the problem of unemployment, both capital and labor, worse than it need be. It is also obvious that the Government departments and commissions represented on this Committee are in daily and intimate contact with the factors and activities that bear upon price levels. Necessarily, this Committee will be interested in any manifestations of this kind. While these remarks have no immediate bearing upon the hearings about to begin, it seemed to me to be worth while to point out that this committee, which is charged with the responsibility of making recommendations to the President and to Congress, is necessarily in a position of advantage to watch changes in prices and to study their causes.

The hearings which begin today are particularly timely. In a fully functioning economy it is probable that no industry has a more important place than the oil industry. Petroleum and its byproducts are utilized by every citizen in his home, in his work, and in his travels, whether by land, water, or air. In national crises the products of the oil industry are absolutely essential and war makes a special demand for petroleum.

The Temporary National Economic Committee is fortunate, therefore, in having the expert and unstinted cooperation of so many executives in industry who have come here to give the Committee and the Nation the benefit of their first-hand information and knowledge. I desire at this point to place in the record a list of the corporations to whom the questionnaire to which I have just alluded was sent.

(The list referred to was marked "Exhibit No. 1136" and is included in the appendix on p. 7425.)¹

And also a copy of the questionnaire.

(The questionnaire referred to was marked "Exhibit No. 1137" and is included in the appendix on p. 7426.)¹

The first witness this morning will be Prof. J. B. Ise of the University of Kansas at Lawrence, Kans., and Mr. Ise has qualified as a student of the oil industry over many years, and has been the author of several books on petroleum. The Committee, therefore, will take the liberty of asking him to introduce the subject.

It should be emphasized that this presentation is wholly a presentation of the committee, and while the Committee has requested Mr. Cox, of the Department of Justice, and Mr. Snyder and their assistants to assist in conducting some of the questioning, the Department of Justice, as such, has no immediate responsibility for the study, for its presentation, or indeed for the manner in which it was undertaken.

Dr. Ise, are you ready to proceed?

Dr. ISE. If it is proper, I will read my statement. Will that be all right?

The CHAIRMAN. Of course, we always prefer to have these statements made in a more informal way, but inasmuch as the Chairman has just read a statement, I don't see that I am in a position to deny your request.

¹Included in the appendix, p. 7426, in connection with these exhibits, is "Exhibit No. 1320," a list of companies which answered the Committee questionnaire.

Dr. ISE. Well, I could put it more accurately, Mr. Chairman, if I could read what I wrote.

The CHAIRMAN. Professor Ise, it has been the practice of this committee to ask all witnesses whether they are expressing opinion or testifying as to facts to take a witness' oath. So if you will please be sworn: Do you solemnly swear that the testimony you are about to give in this proceeding shall be the truth, the whole truth, and nothing but the truth, so help you God?

Dr. ISE. Yes.

TESTIMONY OF PROF. JOHN ISE, THE UNIVERSITY OF KANSAS, LAWRENCE, KANS.

IMPORTANCE AND ECONOMIC SIGNIFICANCE OF PETROLEUM INDUSTRY

Mr. ISE. The oil industry merits the careful attention of this Committee because of its great importance and because of its peculiar characteristics. Producing in 1938, from more than 350,000 wells, a total of approximately a billion and a quarter barrels of crude petroleum; transporting crude oil to refineries through a net work of 115,000 miles of oil-pipe lines, and by a fleet of several hundred oil tankers; refining annually more than 550 million barrels of gasoline, and an equal amount of other products, in 561 refining establishments; transporting these to consuming centers through 6,640 miles of gasoline pipe lines and by thousands of tank cars; and marketing its products through 27,000 terminals and bulk plants, nearly 200,000 service stations, and an almost equal number of other establishments selling oil products; performing all these functions, the oil industry ranks as one of the three or four most important industries. With an invested capital of between eleven and fourteen billion dollars, it ranks next to agriculture, railroads, and public utilities. The industry employs a total of approximately a million workers, more than 500,000 of whom are engaged in marketing.

Figures of investment, production and employment do not, however, picture adequately the economic significance of the oil industry. Just as the nineteenth century was to some extent dominated by the railroads and the use of coal, so the twentieth century is dominated by the internal-combustion engines, in automobiles, trucks, busses, and tractors—using gasoline or other oil fuels; and the economic revolution being wrought by these new sources of power and new means of transportation is perhaps as dramatic and as far reaching in its impacts as that ushered in by the coal-burning railroads of a century ago. As a result largely of the use of automobiles, trucks, and tractors, the urban population of the Nation grows steadily, large cities absorb a constantly larger proportion of our people, many small towns dwindle to cross-roads service stations, while in some of the agricultural regions of the country the use of tractors has increased the productivity of labor many fold, with a consequent displacement of a large proportion of the farmers once needed to produce the Nation's foodstuffs. The cities in the meantime are growing in new plans and designs dictated by the growing mobility of urban dwellers, and the necessity of providing for the millions of automobiles used in transit; while thousands of miles of railroads are being abandoned, and thousands of miles of improved

highways are built every year, highways demanded by the new form of transportation and made possible by the new sources of power. The economic configuration of the country is being recast at a rate unprecedented in history. Even the methods of warfare are being revolutionized, with the use of trucks, airplanes, and oil-burning naval vessels, to a point where it may well be said that oil is one of the first essentials of national defense. The difficulties encountered in Germany in the later period of the World War, as a result of scarcity of petroleum products, point the lesson clearly for us.

The changes brought by oil and the internal-combustion engine have particular significance in the study being made by the Temporary National Economic Committee, for they are without doubt responsible in part for the growing concentration of economic power. Before the advent of the automobile, truck, and tractor the farm communities of the country were to some extent isolated and self-sufficient, centering about the small towns. Today, the entire country is, as Professor Watkins has well said, a "tightly welded nation of 125,000,000 people, living 56 percent in urban communities, absolutely dependent upon mass production, intensive specialization (even in agriculture), and the interregional, transcontinental, even intercontinental, exchange of products—trade."¹ Tractor farming has so greatly increased productivity in agriculture, that farmers are forced to market an increasing proportion of their production, particularly since they must now buy, not only the tractor, which has partly displaced the horses which they once raised on their farms, but the motor fuel which has in part displaced the products which they formerly produced and fed to horses. With the steady displacement of horses by tractors, trucks, and automobiles, farmers are forced more and more into Nation-wide markets, in which, since they sell in highly competitive markets and buy in markets which are more or less monopolistic, they are at a great disadvantage. The result of all this is a steady deterioration of the financial condition of most farmers, a steady rise in the rate of tenancy, a steady shift of farm ownership from the farmers themselves to banks, mortgage companies, and insurance companies, and a general decline in the amount of wealth in farm communities, while billions pile up in the great commercial and financial centers.

On that point, if anyone would care to check up my general statement, there have been two careful statistical studies made, one in 1919 and one last year; the one in 1919 was made by the National Bureau of Economic Research; the one in 1929 was made by the National Resources Board, and a study of those two statistical compilations in which the per capita income by States is indicated shows an alarming decline of the relative per capita incomes in agricultural States. I think it is a most interesting study and I think the facts brought out are really very ominous.

PECULIARITIES OF THE OIL INDUSTRY

Dr. ISE. The oil industry is a peculiar industry in various respects. In the first place, it is based on an exhaustible resource, whose extent and duration are not known. In this respect it differs from some

¹ Myron W. Watkins' book, "Oil: Stabilization or Conservation," p. 2.

other extractive industries, for instance lumber and coal. The proved oil reserves of the United States as of January 1, 1939—"the amount of crude oil that may be extracted by present known methods from fields completely developed or drilled or sufficiently explored to permit reasonably accurate calculations," have been estimated at 17,348,000,000 barrels by a committee of the American Petroleum Institute; but this estimate may prove to be too low or too high. Assuming its approximate accuracy, the total reserves will of course be much greater, for new areas will be tested, and new fields will be discovered, and methods of extraction will be improved in various ways; while improvements in refining processes will bring higher recovery of the more valuable oil products. And, when crude runs begin to dwindle, oil may be extracted from oil shale and from coal, probably at higher cost than prevails today; imports may be increased; and of course oil-driven engines can be made to use fuel much more efficiently than they do now. Practical oil men are generally optimistic about the future of our oil supplies, yet they evince enough pessimism to seek proved reserves with much zeal. Certainly, our petroleum reserves are a dwindling asset, smaller each year, and production mounts at a disconcerting pace. It seems probable, if not certain, that some day, within a time which is short in the life of a nation, the decline in production will begin, and our supplies of fuel and lubricating oils will be obtainable only at rising prices. Bearing in mind the fundamental importance of oil in our national economy, and particularly in national defense, we cannot well be complacent about this question.

A second peculiarity of the oil industry, and one which has been responsible for much of the troubles of the industry, arises from the fact that the supply comes largely from pools underlying land owned by many surface owners. When the problem of legal title to oil deposits first came up, the courts decided that the oil was like "wild animals," and subject to the "rule of capture"—that it belonged to the one who could get it out first. It was the application of this principle which brought the frenzied haste, and until recently the great waste of oil, capital, and energy, which have characterized the exploitation of most oil pools; and it was in an attempt to avoid the evils of the rule of capture that the Federal and State governments have instituted the schemes for unit operation and proration so widely discussed in recent years.

From the unpredictable nature of oil discovery, and from the rule of capture applying to fields discovered, follows a third peculiarity of the oil industry, as it appeared before the days of proration—the fact that the supply showed little response to price. In most competitive industries, high prices elicit increased production and supply, and low prices bring reduced production; but the production of oil has often shown little response to its price. A high price of crude oil tends to stimulate "wildcatting" to some extent, yet discoveries are generally the result of chance, and where the rule of capture applies, oil is produced as fast as possible regardless of price. Millions of barrels of oil have been sold for as little as 10 cents a barrel. Under proration schemes adopted in a number of States, this situation has been altered greatly, and production is to some extent restricted to conform with an estimated public demand; but of course this is done under a State supervision.

Viewed structurally, the oil industry presents another peculiarity of considerable significance. It is really a succession of industries, integrally related in production of crude oil, transportation, refining, and marketing. Most of the oil business is done by large, integrated companies, which perform all the functions from derrick to service station. There are, it is true, some independent producers, refiners, and marketers, but they do only a small proportion of the total business, and they operate under very serious difficulties, in competition with the great integrated companies. It is for that reason, indeed, that integration has really been forced upon those in the industry. With integration has gone the growth of very large business units, units larger than are found in most fields of American industry.

In some of its departments, the oil industry clearly does not fit the pattern of competitive business. In various respects the industry presents a picture suggestive of monopoly. In the first place, the oil business is largely in the hands of 20 large integrated companies. In 1938 the investment of the 20 major companies was slightly in excess of \$8,000,000,000, of a total of between 11 and 14 billions—or roughly two-thirds of the total. The dominating position of these 20 companies, or in some cases less than 20 companies, is indicated by the following table.

PERCENTAGE OF OWNERSHIP OR CONTROL BY MAJOR COMPANIES IN VARIOUS BRANCHES OF THE PETROLEUM INDUSTRY

Dr. ISE. Should I read that little table, Mr. Chairman? It is short; these are just summaries.

The CHAIRMAN. You are the best judge.

Dr. ISE. If I may, then, I will read these brief summaries, showing the position of the 20 large integrated companies in the industry as a whole.

Branch of industry	Date	Number of companies	Percent	Source
Total investment	Dec. 31, 1938	20	66.7	2
Domestic producing oil wells	Dec. 31, 1937	20	23.7	4
Production of crude oil	1937	20	52.5	4
Crude oil gathering pipe-line mileage	June 30, 1936	20	57.4	4
Crude oil trunk pipe-line mileage	Jan. 1, 1938	14	89.0	3
Total crude oil pipe-line mileage	June 30, 1936	20	72.0	4
Investment in pipe lines	Dec. 31, 1938	15	77.4	3
Pipe line operating income	1938	15	86.4	3
Deadweight tonnage of tankers	Sept. 30, 1938	15	87.2	1
Stocks of refinable crude oil	Dec. 31, 1937	20	96.5	4
Daily crude oil capacity	Jan. 1, 1938	20	75.6	5
Daily cracking capacity	do	20	85.2	5
Crude oil runs to stills	1937	20	82.6	4
Production of gasoline	do	20	83.8	4
Stocks of finished gasoline	Dec. 31, 1937	20	90.0	4
Stocks of lubricants	do	20	93.0	4
6 selected stocks figures	do	20	94.2	4
Gasoline pipe-line mileage	Jan. 1, 1938	16	96.1	2
Domestic sales of gasoline	1938	18	80.0	6

SOURCE

1. U. S. Maritime Commission and Petroleum Conservation Division, Department of the Interior.
2. Moody's Manual of Investments, Temporary National Economic Committee questionnaire for oil companies, and American Petroleum Institute.
3. Interstate Commerce Commission.
4. U. S. Bureau of Mines.
5. U. S. Bureau of Mines. Includes Richfield Oil Corporation.
6. Temporary National Economic Committee questionnaire and American Petroleum Institute.

In total investment, 20 companies had 66.7 percent of the total.

In domestic producing oil wells, 20 companies had 23.7 percent.

The CHAIRMAN. What is the source of this compilation?

Dr. ISE. There are various sources. The United States Maritime Commission and Petroleum Conservation Division, Department of the Interior; Moody's Analysis of Investments; some figures were computed by the T. N. E. C., and some were taken from the American Petroleum Institute, some from the Interstate Commerce Commission; a great many from the United States Bureau of Mines and Standard Statistics was consulted on a great many questions. Also, I might say that these figures are not all for the same year because it was impossible to get the latest figures to correspond, that is for some one particular year.

The CHAIRMAN. Do I understand that the figure represent your compilation from the sources that you have mentioned?

Dr. ISE. A compilation of the staff of the Temporary National Economic Committee.

In the production of crude oil, they had 52.5 percent of the total; that was nearly double the number of wells, which indicates that they had the larger proportion of the flowing wells.

In crude oil gathering pipe-line mileage, they had 57.4 percent.

In crude oil trunk pipe-line mileage, they had 89 percent—14 of them had 89 percent.

In total crude oil pipe-line mileage, 20 companies had 72 percent.

In investment in pipe-lines, 15 companies had 77.4 percent.

In pipe-line operating income, 15 companies had 86.4 percent.

In deadweight tonnage of tankers, 15 companies had 87.2 percent.

In stocks of refinable crude oil, 20 companies had 96.5 percent.

In daily crude oil capacity, 20 companies had 75.6 percent.

In daily cracking capacity, 20 companies had 85.2 percent.

In crude oil runs to stills, 20 companies had 82.6 percent.

In production of gasoline, 20 companies had 83.8 percent.

In stocks of finished gasoline, 20 companies had 90 percent.

In stocks of lubricants, the same number of companies had 93 percent.

In six selected stocks figures, 20 companies had 94.2 percent.

In gasoline pipe-line mileage, 16 companies had 96.1 percent.

In domestic sales of gasoline, 18 companies had 80 percent.

The CHAIRMAN. Of course, Dr. Ise, the significance of that compilation would be affected by a knowledge of how many companies are operating in each of these given fields, and whether or not there is any suggestion in what you say of control, concentrated control, among those 20 or 14 companies which you mention. I take it that you have not intimated any concentration of control, I mean concentration of management; though these figures do tend to indicate concentration of ownership.

Dr. ISE. Yes, yes. I don't wish to suggest that there are any collusive agreements among the major oil companies at this point, but merely to indicate statistically what the position of the 20 companies is.

The CHAIRMAN. That is what I thought you were doing and I wanted to make it clear.

Dr. ISE. I suppose if we wanted to indicate the power, the dominance of some of the larger companies, further details which I wouldn't have time for here, might be injected to show that in some

figures a few of the 20 have very strong positions. There are figures in this material here which will show that, however.

The CHAIRMAN. Well, it occurs to me to remark that for example you say 20 companies have 23.7 percent of all domestic producing oil wells, and 20 companies have 57.4 percent of all crude oil gathering pipe line mileage. I think it goes almost without saying that there are vastly more companies owning producing oil wells than there are companies owning gathering pipe lines.

Dr. ISE. Oh yes; oh yes.

The CHAIRMAN. So that without figures showing the total number of companies in the particular field, this table loses some of its significance.

Dr. ISE. Yes; oh yes. I don't know whether the figures would be available to show the number of companies outside of the 20. I doubt if they could be gathered from any material we have. In some cases we had the figures, for instance, of a number of independent refiners, but I don't think it would be possible to give the figures on the number of oil-producing companies all together, would it?

Dr. LUBIN. May I ask a question? The third item from the bottom of your table, "Six selected stocks figures," I take it is stock figures for six selected items.

Dr. ISE. Yes; petroleum items.

The dominant position of the 20 major companies does not of course preclude the possibility of fairly vigorous competition among them, yet certain factors tend to establish a possibility of cooperation. In the first place, some of these companies are interrelated through common-stock ownership, and through the joint ownership of operating subsidiaries and affiliates. As an instance of this, the outstanding stock of the Great Lakes Pipe Line Co. is owned by 8 large oil companies, all of them included among the 20 major units. If these companies should cooperate in their use of the pipe line, they might easily cooperate in other activities as well. In the second place, some of these companies are interrelated through stock holdings in patent companies; and in the third place, the officers of these companies, like the officers of most large corporations, control the voting of the stocks so completely that they need not consider stockholder approval of their acts and policies. The officers are generally absolute dictators of their companies. In the meetings held by 17 of the major companies in 1938 the officers voted an average of 99.3 percent of the common stocks voted.

The relative importance of the 20 major companies has apparently grown appreciably in the past decade or more. Between 1926 and 1937 their percentage of the total crude production rose from 46.3 to 52.5, their percentage of the stocks of crude petroleum and principal petroleum products rose from 76.6 to 94.2, their percentage of refining capacity rose from 65.5 to 75.6, and their percentage of the total gasoline production rose from 71.3 to 83.8. Their position in the industry appears to be growing stronger.

The moderate earnings of these major units—for the years 1924 to 1938, an average of 8.9 percent on the par or stated value of the common stock, or 5.6 percent on the book value of the common stock—do not suggest strong monopoly control; but it is significant that these companies earned their profits largely in the departments or

functions in which a monopoly position is most clearly indicated. Earnings were princely in the pipe-line departments, high in the refining departments, and fairly high in the producing departments, while the marketing departments, where competition is severe, suffered considerable net losses. Thus the earnings in the different departments correspond rather closely with the amount of monopolistic elements in each. Viewed from the point of view of structure, and from the point of view of earnings, the industry thus presents every shading from nearly pure monopoly, in pipe-line transportation, to fairly severe competition, in marketing. Perhaps the general picture would approximate what economists have come to describe as monopolistic competition.

Regardless of possible cooperative action among the major companies, there are various monopoly elements in the industry. While in the market for products, the major companies compete among themselves, and with independent companies at other points they are in a position more or less monopolistic. Patents are essentially monopolies, granted and protected by the Government. In the buying of crude oil from a given field there are seldom enough buyers to suggest a competitive market, and there may be only one—the pipe line running from the field, or a buying agency allied with it. Such a market situation is what economists call “monopsony”—monopoly on the buying side.

Pipe lines, somewhat like railroads and other carriers, are generally in a monopolistic position with respect to producers; in fact, they may properly be regarded as natural monopolies. The Standard Oil Co. established its monopoly position largely through its control of transportation facilities, at first through railway rebates, and later through control of pipe lines. It is true that producers may use railroad tank cars to transport their oil to the refineries, but transportation in tank cars, at railroad rates, is much more expensive than pipe-line transportation. Theoretically, tank-car rates would set a limit to the extent to which the pipe lines or purchasing agencies might exploit their monopoly position; but, actually, they might not even serve this function, for if the producers shipped their crude oil by railroad, they would often be obliged to sell, at destination, to the same interests that controlled the pipe lines or buying agencies in the field. It is true that the Interstate Commerce Commission has general supervision of pipe-line rates, but the princely earnings of the pipe-line companies indicate that the control of the Commission is not very strict. The incomes of all major-owned pipe-line companies reporting to the Interstate Commerce Commission averaged 26.5 percent on investment in 1938.

Through their integration with pipe-line companies, and in other ways, the refiners are in a position to some extent monopolistic. In the marketing of their products, they must meet competition of other refiners, but in the purchase of their crude, they are often in a position more or less monopolistic.

The marketing of crude oil is in some respects highly competitive, yet in other respects it shows distinct elements of monopoly. There is some price cutting by independent stations, but the general picture is one of uniform prices set by some dominating company and followed by most of the others—price leadership. Competition is so severe that the marketing business is carried on at a general loss, but

the competition appears, not in terms of price, generally, but in terms of an aggressive campaign for gallonage, with heavy emphasis on service and advertising.

It may be noted, finally, that competition between the major integrated companies, on the one hand, and independent producers or refiners, on the other, is not such as would be found in a genuinely competitive market. In a sense, the integrated companies and the independents are in different businesses. The integrated companies are in the business of taking oil from the ground, or perhaps I might say in the businesses of taking oil from the ground, transporting and refining it, and selling refined products to ultimate consumers; independent refiners without production are in the business of buying crude oil from producers, refining it, and selling their products to jobbers or marketers. To some extent the two groups are in different businesses, and do not compete on even terms. The independent refiners must make their profits on refining operations or not at all; integrated companies might suffer losses on their refining operations and yet make fair profits on their business as a whole, by recouping their refining losses in other operations. The significance of this may be seen in the present marketing situation. The marketing of oil products is apparently carried on at a heavy loss, which for independent marketers is a serious matter; but the high earnings of the integrated companies in other operations make up for their losses in marketing.

The oil industry, in conclusion, carries some of the earmarks of a public utility. The pipe lines are recognized as common carriers, and other monopoly elements in the industrial pattern of the oil industry emphasize its divergence from the forms of private competitive business. Crude petroleum, the raw material of the industry, is an irreplaceable natural resource, so essential to our economic life today, and so necessary in national defense, that its conservation is almost inevitably a function of the State. This has been recognized more clearly in some foreign countries than in the United States: yet some of our States have gone far in their recognition of the public aspects of oil exploitation, and in their efforts to prevent the wasting of natural resources. There is little doubt that they must go much further, and that the Federal Government will have to render much more help than it has hitherto been able to offer. It is hoped that the information collected by the Temporary National Economic Committee will be useful in the formulation of a sound policy with respect to this very important industry.

Now, Mr. Chairman, if it is proper, I would like to turn over to the committee the material which has been compiled by the staff after much hard work, and I can say careful work, as far as I have checked on it. I think I should say, in conclusion, that in offering this material the staffs tried to avoid pretense of offering a definitive and conclusive study—a final study; that they did not try to draw any very definite conclusions; that they have no intention of trying to offer any remedies but merely that they thought the material would be useful to this committee in formulating a really intelligent policy with respect to the oil industry.

The CHAIRMAN. This represents a compilation of the information which has been gathered since the beginning of this study?

Dr. ISE. Yes.

The CHAIRMAN. By the members of the staff.

Dr. ISE. Yes; of the staff.

The CHAIRMAN. These are not offered to be printed in the record; they are offered, I assume, to be filed with the committee. They are rather voluminous for printing. Isn't that your understanding?

Mr. Cox. Well, certainly as to this first document, which is entitled "Outline of Economic Data," we had hoped that that could be printed in the record.

The CHAIRMAN. The members of the committee have not yet had an opportunity to examine it and I assume that perhaps the decision upon that matter can go over for the present.

Mr. Cox. We had hoped, as a matter of fact, that the material in the appendixes would likewise be printed because it contains a great deal of information that may be useful as a matter of public record, but, of course, that is a matter which the committee will have to decide.

The CHAIRMAN. The material will be received and placed on file for the present.¹

(The documents referred to were marked "Exhibit No. 1138" and "Exhibit No. 1139," respectively, and are printed separately as Hearings, Part 14-A.)

The CHAIRMAN. Do you care to ask any questions? Do any members of the committee desire to propound questions?

The VICE CHAIRMAN. I would like to ask a question. Dr. Ise, you say that the selling activity of these oil companies is carried on at a loss? Is the selling activity carried on by a subsidiary, as a rule, of the major companies?

Dr. ISE. Selling activities are generally carried on through agents. I believe the companies own the station and lease the station generally.

The VICE CHAIRMAN. But it is not conducted by subsidiaries operated by the company?

Dr. ISE. No; I wouldn't understand so. Of course, it varies from company to company.

The VICE CHAIRMAN. Did you find any custom, any usual way of doing the business, in your examination, or did you go into that phase?

Dr. ISE. Yes; I believe the general procedure is that the company owns the station and leases it to a marketer who handles, I think generally exclusively, the products of the company.

The VICE CHAIRMAN. What is the reason for conducting the selling activity of the company at a loss?

Dr. ISE. Well, it isn't such a serious matter for the integrated company, you see, as long as they make it up in some other division.

The VICE CHAIRMAN. You mean, of course, that they must control their selling agency in order to dispose of their material.

Dr. ISE. Yes; but it is very important in a time of oversupply of oil products that a company should have some way, some outlet, for its gasoline and oil products.

The VICE CHAIRMAN. Still it doesn't make it clear to me why it is that that particular part of their activity should be conducted at a loss, whereas they seek to make a profit in other activities.

¹ The documents were later ordered to be printed.

Dr. ISE. Well, a few years ago there was a very serious over-development of the marketing operations. Companies with heavy production of crude oil and heavy output of gasoline were anxious to get that into the market, and for a while with rapidly expanding markets they found it possible and I think perhaps profitable, even, to expand their marketing facilities.

The VICE CHAIRMAN. What percentage of the distribution is conducted by what you would call independent distributors as distinguished from the distributors that are controlled by the organization that produces the gas?

Dr. ISE. I don't know. I will ask Mr. Cox if he has those figures. We have 80 percent of the domestic sales of gasoline. That, however, isn't 80 percent of the number of stations, I presume.

Mr. Cox. No; volume.

Dr. ISE. Volume is 80 percent.

The VICE CHAIRMAN. You speak of a monopoly in patents having to do with the establishment, I believe, of the status of some of these companies as monopolies. Did you make any detailed examination? We had some examination of patents here before,¹ and I don't know whether those two examinations have dovetailed or not. Have you made any examination to what degree that plays a part?

Dr. ISE. Not a sufficiently exhaustive examination to answer any detailed questions intelligently; as a matter of fact, I didn't wish to get into that very far.

The VICE CHAIRMAN. If there is any reason why you shouldn't I will withdraw the question.

Dr. ISE. It is partly that I didn't understand that was to be covered today, and also it is an extraordinarily involved question.

The VICE CHAIRMAN. I withdraw the question. The statement was made that patents had contributed toward the establishment of monopoly.

Dr. ISE. That statement I think is a safe one to make, but beyond that I don't think I would like to go this morning.

The VICE CHAIRMAN. One other question. To what extent is the oil business carried on by that group whom you designate as independents?

Dr. ISE. What business?

The VICE CHAIRMAN. I am talking about the oil business.

Dr. ISE. It varies with the different branches of the business, of course. You see that in total crude oil pipe-line mileage they would have 28 percent.

The VICE CHAIRMAN. The independents would?

Dr. ISE. Yes. That is other than the 14 integrated companies we have here. In the case of trunk pipe-line mileage they would have 11 percent. All other than the 14 leading companies would have 11 percent.

The VICE CHAIRMAN. Now what percentage of refining is conducted or carried on by those whom you designate independents?

The CHAIRMAN. According to these figures, 4.4 percent.

The VICE CHAIRMAN. If he has already testified to that, I will not pursue it.

¹ See Hearings, Parts 2 and 3.

The CHAIRMAN. Professor Ise, adverting to the testimony you gave with respect to the relative importance of these 20 major companies, I noted that your figures were based upon the increases in the percentages controlled by these 20 companies in various branches of the industry in the period 1926 to 1937. Was it intended to imply that before 1926 the reverse might have been the case, and that independents occupied a more important position in the industry before 1926 than after '26? Or was there a steady increase during the period of years?

Dr. ISE. I don't know how far back—I think we have figures only from '26, not any earlier than that. Of course if you go back far enough you will find the reverse of this because at one time one company controlled much more than all of the 20 companies control now.

The CHAIRMAN. That is exactly what I had in mind. There was a period when one company was the dominant agency in the field, and then after the decision of the Supreme Court when the Standard Oil trust was broken up into its constituent members, the situation changed materially.

Dr. ISE. Yes; gradually, of course.

The CHAIRMAN. Yes; only gradually. And then did you mean to imply that there is a change in the reverse procedure now?

Dr. ISE. Well, it would seem so from these figures, although it is still much more nearly a competitive situation because we are talking about 20 companies now and not 1. It is true, I believe, that 5 of these 20 companies are Standard companies, but there is competition among the Standard companies.

The CHAIRMAN. In all branches of the industry, or only in the market?

Dr. ISE. Well—

The CHAIRMAN. Or do you care to express an opinion on that, from your study?

Dr. ISE. Well, I suppose to some extent there is more or less in various branches of the industry, but I wouldn't like to go into that too far.

The CHAIRMAN. Are there any other questions?

Representative WILLIAMS. Is there any reason why these companies shouldn't be put in the record—the names?

Dr. ISE. They are in the record somewhere. I haven't in my statement—

Representative WILLIAMS (interposing). Have you a compilation of them there?

Dr. ISE. Yes; that is in the material which I am handing this committee.

The CHAIRMAN. Well, the names of the 20 were included in the list that I put in the record this morning, but not in such a way that they could be identified. Suppose you read the names of these 20 major companies, the ones to which you refer in this testimony.

Dr. ISE. Standard Oil Co. (New Jersey); Socony Vacuum Oil Co. of New York; the Standard Oil Co. (Indiana); the Texas Corporation (Delaware); Standard Oil Co. of California; the Gulf Oil Corporation; Cities Service Co.; Shell Union Oil Corporation; Consolidated Oil Corporation, formerly the Sinclair Consolidated; the Phillips Petroleum Co.; Tidewater Associated Oil Corporation; Atlantic Refining Co.; the Pure Oil Co.; Union Oil Co. of California; Sun Oil Co.;

Ohio Oil Co.; Continental Oil Co.; the Standard Oil Co. of Ohio; the Mid-Continent Petroleum Corporation; and the Skelly Oil Co. are the 20.

Dr. LUBIN. Dr. Ise, can you define for the committee so that we could have the issue clarified just what you mean by "independent" as you use the term? Do you use the term as meaning all companies other than these 20 integrated companies?

Dr. ISE. Well, I think that one could hardly give a definite definition of that term because that would shade off from somewhere perhaps not so different from these 20 companies to others that are, of course, in an absolutely independent position. Perhaps I might ask some of the staff if they could do that better.

Mr. BERQUIST. The 20 companies as a group have been called the major companies; there are other companies smaller than these that are integrated in much the same way and function much the same way. It is the 20 companies that represent more or less arbitrarily, and yet commonly accepted grouping within the industry. Now normally that is the practice. I might say that in this connection that each of the 20 companies have assets in excess of \$25,000,000, ranging from that to well over \$1,000,000,000, so there is quite a range within that group.

Dr. LUBIN. In other words, we are not to interpret the word "independent" as meaning independent of these companies, because among the remaining companies may be many which are subsidiaries in a sense, or controlled by these 20 companies.

Mr. BERQUIST. That is not correct. The subsidiaries are represented within these 20 companies as indicated. We have considered them as a part of the 20 companies when they have been subsidiaries.

Dr. LUBIN. So that all remaining companies which under this arbitrary definition of "independent" are independent in the sense of ownership at least?

Mr. BERQUIST. As far as these 20 companies are concerned, and when we say "ownership" that is ownership of less than one-half.

The VICE CHAIRMAN. What do you mean by "integrating" companies, using that word in connection with this business?

Mr. BERQUIST. Well, you are anticipating, I believe, I might say this, however, that by "integrating" we mean—

The VICE CHAIRMAN. I withdraw my anticipation.

Mr. BERQUIST (resuming). Operation in the four principal branches of the industry—production, transportation, refining, and marketing.

The VICE CHAIRMAN. What do you mean by integrating?

Mr. BERQUIST. Well, they control and operate, you might say in a vertical manner from the production of crude to the selling of refined products, whether it be gasoline or any other product.

The VICE CHAIRMAN. You mean then by "integrated" a company that proceeds to handle the product from the ground to the automobile?

Mr. BERQUIST. That is right.

The CHAIRMAN. Are there any other questions? Professor Ise, this outline of economic data relating to the petroleum industry,¹

¹ "Exhibit No. 1138," printed separately, with "Exhibit No. 1139," as Hearings, Part 14-A.

which was the first of the several documents which you presented, represents, as I understand it, a summary of the analysis of all of the material which was presented to the committee?

Dr. ISE. Well, I don't know that it includes all. I will ask Mr. Berquist.

Mr. BERQUIST. That does include everything that was covered by the questionnaire, plus much other information of a public character that was pertinent on this inquiry. It is rather a synopsis or bird's-eye view of the operations and function of the petroleum industry.

The CHAIRMAN. As prepared from the material which was presented to the committee in response to the questionnaire.

Mr. BERQUIST. And from other sources.

The CHAIRMAN. But in the circumstances, if there is no objection, since Mr. Cox expressed the opinion that it ought to be printed, I shall submit this for printing in the record. I think it will be useful to everybody who is concerned in following this study.

Professor Ise, you have nothing more to add?

Dr. ISE. I believe not.

The CHAIRMAN. That being the case, the committee will call Dr. Joseph E. Pogue, vice president of the Chase National Bank of New York City.

(Whereupon the witness, Dr. Ise, was excused.)

The CHAIRMAN. Mr. Pogue, of course, is a well-known economist and an expert in this industry. Before asking you to state briefly for the record your experience, Dr. Pogue, may I ask you to be sworn? Do you solemnly swear that the testimony you are about to give in this proceeding shall be the truth, the whole truth, and nothing but the truth, so help you God?

Mr. POGUE. I do.

The CHAIRMAN. Would you be good enough to make a preliminary statement as to your qualifications?

TESTIMONY OF DR. JOSEPH E. POGUE, VICE PRESIDENT, THE CHASE NATIONAL BANK, NEW YORK CITY

Dr. POGUE. Mr. Chairman and members of the committee, I appear before this committee as a student of the petroleum industry, rather than in my official capacity as an officer of the Chase National Bank. My experience in the oil industry as an engineer and petroleum economist goes back for a matter of 25 years, or thereabouts. It started with work for the Federal Government, first with the Smithsonian Institution; next as a member of the Oil Division of the U. S. Fuel Administration during the World War.

At that time I was assistant director of the Bureau of Oil Conservation of the Oil Division. Following the termination of the war I spent some months in Washington engaged in writing a chapter analyzing the behavior of oil prices during the World War, published as a part of a larger study by the War Industries Board. In connection with that study I had the privilege and pleasure of the assistance of Dr. Isador Lubin, who I understand is adviser to your committee.

The CHAIRMAN. A member of the committee.

Dr. POGUE. I beg your pardon. Following that I spent about 2 years as the manager of the department of economic research for

one of the oil companies. At the time of the depression in 1921 I opened a consulting office and was a consultant on petroleum matters from 1921 until the fall of 1936, when I went with the Chase National Bank to head up their department of petroleum economics. During this period and from the inception of the topics which I have been requested to discuss, namely proration and conservation, I have been a close student of the development of those activities in the petroleum industry and on several occasions I have been drawn into their orbits.

First, I was a member of the committee on economics appointed by the Federal Oil Conservation Board, which committee drew up the first production quotas used by the proration mechanism and initiated the technique which was subsequently taken over by the United States Bureau of Mines and continued to this day.

Next, during the N. R. A. days I acted for a brief period as deputy economist for the N. R. A. as adviser to that body during the formulation of the petroleum control. Subsequent to that I was appointed to and still am a member of the advisory committee on economics of the Interstate Oil Compact Commission. I must ask your pardon for taking up so much time in presenting that background.

The CHAIRMAN. It is quite all right; you have done it at the express request of the Chair.

Dr. POGUE. I appreciate the privilege of appearing before this committee. I do so at the request of Mr. Thurman Arnold, who, about a year ago, asked me to prepare and submit a statement for the use of the committee, which was done under the title "Economics of Conservation and Proration of the Petroleum Industry." This statement is some 50 pages long and has been filed with the committee. This statement was later supplemented by a published pamphlet which was prepared as a chapter in a forthcoming book to be published by the American Institute of Mining Engineers, the chapter entitled "Economics of the Petroleum Industry," which gives a broader background to the statement.

(The documents referred to were marked "Exhibits Nos. 1140 and 1140-A," respectively, and are included in the appendix on pp. 7435 and 7457.)

This published document¹ has also been filed with the committee as part of my statement. It is obviously impossible in the few brief moments—nor would it be desirable—to read these documents. I hope that the committee, if sufficiently interested, will read them. I have prepared, however, a summary of these summaries, which I will not attempt to read, but will attempt in a few brief moments to outline, which I hope will give in a broad and impressionistic fashion a conception of the proration-conservation concept, which, in my judgment, is a very complex matter and is not thoroughly understood by many who are engaged in its practice and is difficult to grasp without a concentrated effort to see below the surface and to visualize the underlying trends and tendencies rather than the surface manifestations.

PRORATION

Dr. POGUE. There are two ways to produce an oil well. It can be produced wide open or at a retarded rate. If the well is produced

¹ "Exhibit No. 1140-A"

wide open under flush conditions, as we say, the natural forces present in the oil wells are inefficiently utilized, the reservoir energy is exhausted before it brings to the surface all the oil that it should, and the pool must be pumped prematurely. If, however, the flow of the oil is restricted the reservoir energy is more effectively utilized, much more oil is brought to the surface, less oil is left in the field when it is commercially exhausted, and pumping can be delayed until the last phase of extraction is necessary.

Thus a restricted rate of production within the proper limits results in getting more oil and lowering the over-the-life costs per barrel of the field. Now, that is a simple conclusion, but it is of fundamental importance in this discussion. May I illustrate from exhibits which will be filed as part of my testimony to the committee?

Open-flow production in an oil well is obtained through a casing. This is a cross-section of a 6-inch piece of casing.¹ You can imagine oil or liquid flowing through that orifice. In the old days before proration, our oil was customarily and invariably produced through orifices as large or larger in many cases than this. Under present practice what is known as a "choke" is introduced in the flow line of the oil well and the production is obtained through an opening which in this case is $\frac{1}{8}$ inch in diameter; this is a choke sliced in half showing the opening through which the flow is obtained.

The CHAIRMAN. The choke, then, is a piece of steel which is inserted in the casing and blocks the casing to whatever extent may be desired. It contains in the center an opening which is controlled and varied according to the amount of oil that the operator desires to permit to issue. Is that correct.

Dr. POGUE. That is correct; and it evidences, sir, that you are from an oil-producing State, because you must have seen these in operation. Now, the point of particular interest is that any old rate of restriction from the point of view of efficiency of recovery, is better than open flow. Any old rate, except perhaps a trickle. But for every oil pool, depending upon the volume of oil in the pool, there is some best rate, some rate—and this rate can be determined by the engineers—some rate that gives the best results. This rate we have called the optimum rate. Now, it so happens that under proration the output of a great many of our oil fields approaches the optimum rate of that pool. This rate differs with every pool, of course.

Now, if all of our oil fields were limited to their optimum rates, their best, most efficient rates, we would then have the basis for the most efficient production of our petroleum resources obtainable under present knowledge. That statement can be made, and I think will be verified, by the testimony of the engineers best acquainted with field conditions. Now, up to 10 years or so ago it was the rule in our oil fields to produce wells wide open, and as rapidly as possible. Why was this? This was the case because demand at that time, and up till that time, was growing so rapidly that the existing technique that we were in possession of failed to discover oil rapidly enough to support other than a hand-to-mouth policy.

The open-flow capacity of our reserves just about kept pace with the requirements of the market. There were overages, which were quickly corrected; there were underages, which quickly reversed

¹ Dr. Pogue displayed a mechanical exhibit illustrative of his testimony.

themselves. Flush production during the period of the industry up to a very recent date was the only choice. Since the existing reserves are not adequate in size to support retarded rates of production, I say the only choice—that is not strictly correct—the other choice, the alternative, was not to meet the growing demands of the Nation. Since the middle twenties, however, something has happened. A revolution in oil-finding technology has taken place. This is well known in geology and geophysics, and the rate of expansion in consumption has slowed down its pace; so finally the rate of discovery outdistanced the consumption rate by a wide margin.

Now, this difference in relative movements of finding oil and consuming oil made it possible to build up a reserve position larger than a hand-to-mouth one. Now, of course, it is obvious that the surface manifestation of this change has to make its appearance in the form of a chronic over-supply in terms of the old methods of flush production. Why? Because the so-called rule of capture and the costs of deferment always provide the impetus, naturally, for the conversion of a reserve of any kind as promptly as possible into marketable supply. Under these circumstances, and I am speaking now from the point of view of 10 or 12 years ago, and when I interpret and analyze what took place I do not mean to say that we knew or understood at that time as clearly as we do now, or if at all, what was taking place—but these things are responses to circumstances and sources that in our judgment developed in this way. At that time the petroleum industry faced a dilemma. It could either attempt to exhaust this mounting supply by flush production with its train of low prices, storage above ground, and underground waste, or else devise some method of cutting back production in the hope of reestablishing economic equilibrium in the situation.

Now the differences in cost between flush and stripper production, big wells and small wells, was so great that if the industry had attempted to destroy or get rid of this mounting reserve position it doubtless, in my judgment, would have wrecked the industry financially, destroyed a large part of the gathering reserve and given no insurance after the thing was over that we wouldn't have to go in for recurrent cycles of repetition.

The ultimate course was—whatever the merits or demerits involved—experiment with a new type of production control, and this thing that we are talking about has no counterpart in our economy or in any other economy; it is new; it is a new experiment. It was found that conservation laws of the oil-producing States gave the basis for a program of throttling the output of these flush wells. This was tried out in certain areas and eventually extended to practically all flush fields. This period of trial and extension lasted over a number of years. In such wise a movement was launched which gradually became institutionalized in this form which we now call proration. The original motive of establishing proration was, therefore, an economic motive, a response to the urge to find means for solving a critical industrial problem. Accordingly the transition from the flush era of production to the proration era was brought about under the influence of the profit motive and may I add, it is fortunate that the restriction of production is such an effective conservation device, for this circumstance has raised the conservation concept from an academic abstraction to a practical measure.

MOTIVES UNDERLYING PRORATION

The CHAIRMAN. Would it be proper, Dr. Pogue, interrupting you, to say that the motive which stimulated this program of retardation of production, proration, was to maintain the price of the product? You say there was an economic motive.

Dr. POGUE. The motive, so far as I can judge the motive, at the outset was the economic motive of stabilizing the industry.

The CHAIRMAN. And by stabilizing the industry you mean maintaining the price at such a figure that the industry could be operated profitably?

Dr. POGUE. I don't know whether one would say "maintain the price." Certainly I admit freely that the motive at the outset was economic. In any activity the economic motive is paramount.

The CHAIRMAN. You described the situation which has two results. First, from the point of view of conservation, as you have described it, it tends to preserve a field; it tends to secure a larger amount of oil from the ground under the force of nature itself, without pumping, and thereby tends to make the supply obtainable, at a lower cost?

Dr. POGUE. That is correct.

The CHAIRMAN. And also preserves a larger amount of recoverable oil and makes it possible to recover a larger amount of oil in a particular field. Now that is the conservation motive. Then there is also another motive which you have quite clearly described, flush production, without any retardation, was producing what you called an over-supply. Over-supply naturally results in lower prices, and the economic motive, altogether independent of the conservation motive, was to reduce the supply in order that the price might be maintained—was the word I used. I don't want to insist upon that word.

Dr. POGUE. I would rather, Senator—I think motive is a less proper word than incentive—but I would rather look upon it as a matter of the effect on costs. Of course, the development was intangible at that time. We now know a great deal about the technology and economics of proration that were not known at that time. The thing started in a very small way; naturally the motive was there to prevent or to correct a chaotic condition.

The CHAIRMAN. Well, of course, cost and selling price are phases of the same—

Dr. POGUE (interposing). Yes; but I think it is fairer to say that if a contemplated practice reduces costs, increases profits, and permits lower selling prices, it would be different than to say that the contemplated practice merely is thought to be one that would raise prices.

The CHAIRMAN. Let me abandon the phrase "maintaining prices" because I see you don't like the connotation, and I don't intend to imply any critical connotation. Let us say that the motives were two, conservation motive and the profit motive.

Dr. POGUE. Yes, sir.

The CHAIRMAN. You will agree with that statement?

Dr. POGUE. Yes, sir.

The CHAIRMAN. Very well.

Mr. HENDERSON. May I ask the witness a question, Mr. Chairman?

Where did the strongest force for proration arise, in the State authorities, or did it arise among Federal authorities? Did it arise in the oil companies themselves, and if so, did it arise in the largest units or in the independents? Have you traced that at all?

Dr. POGUE. Well, that is an interesting question. The thing developed as a sort of trial and error. It would be hard to pin one starting point. Many times in the past in the periods of temporary overproduction, proration has developed as an alternative to letting the oil flow down the creek, so to speak. The first formal or sustained use of this instrumentality, which was experimental, I dare say, was to meet an emergency that developed in 1926 in the Seminole area in Oklahoma, and I think that was initiated by the operators, based on the experience with it, sporadic episodes, in the past. I don't know that I could answer whether there was any single brain that conceived this thing. I should doubt it very much. Those things don't develop that way.

I don't think anyone visualized what it meant or where it was going. I am sure that no one thought at that time that they were initiating a new industrial device that would become as pervasive and important as the proration-conservation concept is today. May I add, Senator, that I would like to go into the point you raise further and in a few moments I shall touch on that point again. I don't wish in any way to seem to evade that point.

The CHAIRMAN. Very well.

The VICE CHAIRMAN. Mr. Pogue, while you are interrupting your general statement, you state that putting the choke into the pipe enabled you to extract more oil from a given area than you otherwise would be able to. How do you arrive at that conclusion? I don't mean to go into it generally, but how do you know that is true?

Dr. POGUE. I am glad you brought that point up.

The VICE CHAIRMAN. I don't want to take you far afield.

Dr. POGUE. I am glad you brought up that question; it is very important. We could spend weeks—

The VICE CHAIRMAN (interposing). A couple of days is all we can take on it.

NECESSITY OF UTILIZING NATURAL FORCES IN RECOVERY OF OIL

Dr. POGUE. But the proof of it would be engineering testimony from a wide body of engineers; perhaps I can give the proof that satisfies me in a very few words. The factor that makes oil in the ground of commercial value is not the oil itself; dead inert oil is of no value; it is the pressure and energy that occurs, associated with the oil, which permits one to get the oil to the surface. Now, that energy is of two kinds, and this knowledge was discovered in part as a result of proration. Proration permitted us to understand—the engineers to understand—much more about production. There are two forms of this energy; water that underlies the oil under hydrostatic head tends to shove the oil out. Gas dissolved in the oil tends to move the oil out when it comes out of solution, and second the gas itself doesn't occur as gas but dissolved in the oil it gives a liquid that is very much thinner and less viscous than oil as we know it.

so that the crude oil which is a gummy, sticky substance on the surface, in the oil sand saturated with gas in solution is like kerosene. Therefore if you produce the well too fast you exhaust this energy faster than it brings the oil to the surface.

The VICE CHAIRMAN. How does that come about? Here you have a great big pool and you put down innumerable wells. If you put down a few wells would you get the same pressure? What is the relationship? I believe I will withdraw the question because there is not much we can do about it, I guess.

Dr. POGUE. Go ahead with your question.

The VICE CHAIRMAN. No; I think I won't.

Dr. POGUE. I am trying to explain in a few sentences the basic engineering principles of production, namely that the thing that makes the oil valuable is the natural force.

The VICE CHAIRMAN. We understand that.

Dr. POGUE. Now can I make clear that those forces must be utilized *pari passu*, or parallel with, the bringing of the oil to the surface. If you produce the oil through an opening like this you produce two or three units of pressure for every unit of oil. Produce the gas too fast: the gas comes out of solution; you pull the oil out before the pressure of the incoming water has a chance to put in its work. If you put in a choke you produce it slowly and utilize the natural forces, and we know—and I think engineers will testify to this fact—that our reserves under proration have nearly doubled. That is due partly to the effect of the conservation attributes of proration itself, and the reserves which used to be ten or twelve billion barrels and are now officially estimated—

The VICE CHAIRMAN (interposing). We can't go too much into detail. Thank you very much.

THE OPTIMUM RATE OF PRODUCTION

Dr. POGUE. Now, to go ahead with this discussion. As soon as you have a body of information and experience of proration accumulated it becomes clear that not only did delayed production contribute to the enlargement of the crude-oil reserve, but—and this is important—a greatly augmented reserve was necessary to support the optimum or most efficient rate of production. You had to have a larger reserve before you could have conservation.

In short, conservation cannot be attained except in the presence of a much greater reserve than is required for flush production, and furthermore—and this is important—the reserve cannot be stepped up from the flush size to a optimum without the aid of some sort of production control that will do two things; that will hold the surplus oil underground until wanted and at the same time permit discovery to go on so as to help build up the reserve. That is a complex statement, but that is fundamental. The process of transition then from a flush reserve to an optimum reserve requires a mechanism of balancing supply and demand and that is where this market demand aspect of proration came into the picture as a device permitting the build-up period from a flush reserve to an optimum reserve.

Now, the use of market-demand proration causes all sorts of difficulties in administration and all sorts of confusion of thought, be-

cause it looks like it is pretty far removed from conservation, but it must be clear upon close analysis that as a reserve expands toward its optimum rate the closer the production quotas, even though they be based on market-demand, will come to coinciding with the optimum rate, or most efficient, quotas. Accordingly, even the debatable measure of market-demand instituted under the sanction of conservation, but having a stabilization effect, in reality turned out to be an essential step in the conservation process.

Now, the reserve at the present time is fairly close to the optimum size, and hence market-demand quotas carry a high degree of conservation attributes. It is apparent that the evolution may soon reach a point where market-demand quotas can either be dispensed with or they will naturally grade into optimum rate quotas so that they will be scarcely distinguishable. They may still be called, as things often are, by the historical name, although the function itself has changed. At this stage, proration can be conducted as a full conservation measure, with an eye merely to the most efficient rate and the preservation of property equities and the regulation of the system left entirely to the free play of natural economic forces. I suspect that the evolution is in that direction and we are nearer there than is generally appreciated.

The CHAIRMAN. Do you feel that that result has now been obtained?

Dr. POGUE. This is an evolution. I think we are well advanced toward that goal.

The CHAIRMAN. Of course, you are aware, naturally, of the fact that there is a great deal of criticism of proration and of the manner in which the various proration laws are enforced; complaints are constantly made that the proration laws operate to the disadvantage of many producers.

Dr. POGUE. Yes; I am aware of that.

The CHAIRMAN. I gather, from your statement, that you do not believe that a condition of wholly equitable and just administration of proration has been attained as yet. When I say administration by officials I mean the whole program of proration, the laws as well.

Dr. POGUE. There are a good many imperfections in the administrative device, and all that I can say is that it seems to me considerable progress is being made.

Mr. HENDERSON. Would you say that the recent difficulties which led to action by various State authorities in Texas, and so forth, were better handled than some of the previous disturbances?

Dr. POGUE. Well, it seems to me that the incident to which you refer was a very interesting episode—I would call it such—I don't think it is of fundamental import. The operators were shocked when the price declined 20 cents a barrel, and the regulatory authorities seem to me to have manifested an emotional reaction to the feeling and rebellion of the operators and we witnessed something that was in the nature of a sellers' strike. Those phenomena are not wholly unknown. It seems to me that at about the same time there was a sellers' strike among tobacco growers in North and South Carolina. They felt dissatisfied with the price, refused to bring their tobacco to market. I think this is an example of a little extraneous problem, and I would designate it as an interesting example of mass psychology rather than anything fundamental in the conduct of the industry.

Mr. HENDERSON. Do you mean by that—let's see if I gather this correctly—if the move which was instituted by the 20-cent reduction had continued and sellers and buyers had gotten into an extra amount of competition, we might have been moved toward a market control over proration and the action of the State authorities interrupted that?

Dr. POGUE. I am not clear as to your question.

Mr. HENDERSON. Well, I thought you testified that through this progressive evolutionary movement we were reaching a point at which the ordinary market forces would take care of proration, and I asked the question in terms of the recent disturbance, and you said that was some what of an emotional outburst. What I was trying to find out was whether or not the move which occasioned the emotional outburst was a move toward greater competition and toward greater reliance on the market—

Dr. POGUE (interposing). No; I don't think so; no. I shouldn't say that was true.

Mr. HENDERSON. It is just an incident along the highway?

Dr. POGUE. I would judge so; interesting, but not particularly significant.

Dr. LUBIN. Dr. Pogue, isn't there something inherently different between a given number of producers refusing to sell their product, as was the case in tobacco, and an institution that is created by the State, by government, to make it possible to forbid anybody from selling his product, whether he wants to or not? In other words, in the tobacco situation John Smith could have sold his tobacco if he had wanted to, and there were many John Smiths who sold their tobacco nevertheless. In the case of the last episode in proration, even though individual producers may have wanted to sell their oil and felt that they could profit by the deal they were forbidden to do so because of the existence of an institution which was created by government.

Dr. POGUE. Yes; I think your point is well taken. There is a difference. The move evidently which lasted only a brief period, but could not in my judgment have lasted a long period, apparently met the almost universal support of public opinion in the States. There were practically no legal objections raised. There would have been, I presume, if they had gone on. It had very little economic effect. Perhaps it could be interpreted as undoing some of the overages in stocks that had previously accumulated.

I have just a few more points to make and perhaps I am taking too much time, Senator.

The CHAIRMAN. Not at all. It is very interesting, Dr. Pogue. I thought that we would continue until 12:30 and then recess for luncheon, so you may proceed.

Dr. POGUE. I will hasten, then. It is very difficult, of course, to sketchily and quickly go over a thing as complicated as a new administrative form such as proration. It is a matter that to be adequately considered would take a long period and would not be interesting to take that time, and when you condense it—

The CHAIRMAN (interposing). On the contrary, I think it is a very important subject matter, because as was suggested by Dr. Lubin's question, it is a plain illustration of what we hear commonly called "Government interference with business." It is an interference with the free play of the desires of the owners of property to do what they

please with that property in an economic field, and it illustrates a form of Government intervention which is exemplified in various lines. Here it is in a natural resource.

Several months ago the Department of Justice was presenting to this committee a study of the operation of the patent laws and how patents were used to control production.¹ Later on we had a representative of the Department of Agriculture before us and representatives of farmers who were discussing the control and production of milk, for example.² So that it represents a phase of a most interesting question, one which is constantly being presented to those of us who happen to sit in legislative positions, and one which is not always understood. We find, for example, that sometimes those who favor one type of control are absolutely opposed to another type of Government control, and therefore I say to you it is to my mind at least a matter of the greatest interest and I would like to see you develop it fully from your point of view.

Dr. POGUE. I will be glad to continue and come back to that topic later, if you wish.

NECESSITY FOR PROPER SUBDIVISION OF THE OPTIMUM RATE IN AN OIL POOL

Dr. POGUE. There is one more point in the regulation of production from the point of view of conservation and efficiency. In order to have efficient production you must do two things: You must regulate the rate of output of the entire pool so as to get the best utilization of the forces provided by Nature. Then, in addition to that, if the pool and ownership is subdivided, as is usually the case, then it is necessary to set up rules for the proper subdivision of the optimum rate of the pool, at the best rate or the rate selected among the different lessees of the pool.

The principles for this subdivision are two in number: First, you have got to do equity, fairness to each operator; and, second, your conservation efficiency objective for the whole pool must not be upset by any individual action different from that of his neighbors.

In the development of the proration technic, those two principles have only slowly emerged and the administration of those principles is still in the course of evolution, so that as we witness the methods of allocating the pool quotas to lessees, the course of evolution is from those faulty methods based upon the well itself, which put a premium on too much drilling and investment, to those involving some combination of number of wells and acreage, which is the present status, with the concept moving in the direction of more advanced procedures involving the recoverable oil itself. The imperfections in the allocation formulas formerly used and in part used today are the sources of many of the administrative difficulties, are the sources of many of the complaints that come in to you gentlemen and the Department of Justice, as well as the cause of economic unbalances arising from the overstimulation of drilling.

The problem of regulating the operation of competing leases within the pool meets its most effective solution when the development of

¹ Hearings, Part 2.

² Hearings, Parts 8 and 7.

pressure differentials within the reservoir is minimized, thus inhibiting cross drainage from one property to the other. That is a simple thing to say; that is the fundamental principle involved; it is difficult to develop the proper administrative tool for accomplishing that with 100-percent perfection, but the trend is definitely in that direction, the methods are improving, and we are headed that way. By doing this, not only does each operator get his fair share of the oil, but he is able to do so without having to make an undue investment. In other words, you get a proportioning of the investment to the delayed production imposed for the sake of more efficient production.

The CHAIRMAN. When you say "each operator," do you mean that the small operator as well as the large operator is treated equitably?

Dr. POGUE. I was discussing the principles underlying the treatment. So far as the actual treatment is concerned, I naturally do not have information on the thousands of individual cases. I think that by and large the small operator gets—my frank opinion is that he gets a square deal plus, because naturally the administrative bodies, like all administrative bodies, are more interested in the small operator than in the large operators, and I think that perhaps that is a desirable thing; I believe it works out that way. I do not think that, broadly speaking, the operator has any serious cause for complaint except in specific cases. Now, of course, most operators think in terms of how nice it would be if everybody else had to obey the rules and he himself could produce wide open. Of course, that contrast is galling to many individuals, but that is only natural.

The VICE CHAIRMAN. Dr. Pogue, are you approaching the limitation of the number of wells that go down in a pool? Is that what you have some reference to?

Dr. POGUE. Yes.

The VICE CHAIRMAN. Some sort of apportionment among the owners of the pool?

Dr. POGUE. No. I think the proper handling of that problem would be to set up rules and regulations that would create incentives such that operators would naturally drill the proper number of wells. I would like to envisage a system with minimum coercion. I will admit the necessity of some measure of control in oil production, only because under the operation of the rule of capture and the operation of the law of deferment, a pool subdivided cannot hold itself back, in other words the transient advantages of quick production are so great that part of the oil is sacrificed at a cost and society will then pay the penalty later on.

The VICE CHAIRMAN. If you had a limited number of wells flowing wide open in a given pool, are you able then to take advantage to a larger degree of these natural forces that bring oil up than you would be if you had a very much larger number of wells?

Dr. POGUE. Definitely, no. We tend to drill too many wells. There is another point there that is very interesting. In the old flush days the idea was to maximize the production from the individual property and the only way to do that was to drill wells as fast as possible and produce them as rapidly as possible, but as soon as everybody did that, that advantage washed out. Now under conservation the objective is to maximize the recovery from the entire pool, and that has to be treated differently. Everyone in the oil business admits the desirability of making the resource stretch

as far as practicable. This whole thing is with that purpose in mind. Now it so happens that you can't smooth out a production curve, that is you can't have efficient production and have the production curve like a church steeple, flush and a big decline.

The VICE CHAIRMAN. But the only way you extract the maximum amount of oil from the pool is to put this restrictor in the pipe.

Dr. POGUE. That is the whole thing. There are a lot of details that we can forget, but if you want to get the concept 100 percent clear that is it. That is 90 percent of the whole problem of conservation. There will be a lot of little tricks and gadgets and complications but why bother with them if that is practically speaking the whole point? And any old rate is better than no open rate and there is one best rate. How are you going to get that? That is what the industry is striving to do.

Mr. BALLINGER. Do you determine that for every well, Dr. Pogue?

Dr. POGUE. It isn't a question of determining it for the well. Engineers I believe can determine it within close or reasonable limits for every well.

Mr. BALLINGER. Determine open production for every oil well, engineers can do that?

Dr. POGUE. Under proration we have developed what is known as a device for reading the pressure of the oil reservoir, and all you have to do is to take those measurements; they are not difficult to take, they are done periodically, systematically. The railroad commission has a staff of engineers doing it all the while, and you can measure to a nicety how much energy you are using per barrel of oil produced. I think the ideal, probably, in the end will be that we will keep the pressure level. There are two schools of thought on that subject.

The CHAIRMAN. I am not altogether sure, Dr. Pogue, that I understood the question that Chairman Sumners asked and the response that you gave. I understood his question to be whether—let's make it specific—whether one well in a given field operating at full capacity would not as effectively preserve the pressure in that field as two wells of the same size, operating at one-half their capacity.

Dr. POGUE. No.

The CHAIRMAN. It would not?

Dr. POGUE. No; there are a few unusual types of fields. We could go on a long time if we had to bring in all the qualifications but there are many types. There is one type of field prominent in Mexico, not very prominent in this country, that can best be compared perhaps to oil occurring in the Mammoth Cave, a great interlocking single reservoir of oil. If you had that sort of thing you could pull it all out with one well as well as a number, but that is not typical and really is interesting to go into but I think doesn't bear on the broad problem, because almost all of our oils are of different types in this country.

The CHAIRMAN. In other words, then, if you have a large number of wells each restricted below its capacity you more effectively control the pressure than if you had a small number of wells producing exactly the same amount of oil.

Dr. POGUE. In general, yes; because you have got to keep the pressure equalized through the pool. Now, in each pool there is a drainage area that is optimum, at best; it is larger than we used to think

but it is not as large as the whole pool. The best spacing would be 1 well to 20 or 30 acres, sometimes 1 to 40, something like that.

Representative WILLIAMS. Doctor, I am not clear at all what the formula is by which you can have an equitable distribution of the rights between the various surface owners, above the pool.

For instance, here is one man who owns 10 acres and another a thousand overlying the pool. How are you going to distribute? What is the formula by which the rights of each one of those surface owners is determined?

Dr. POGUE. You mean the formula that I think is the best or the formula that is used in specific cases?

Representative WILLIAMS. How are the rights determined in a case of that kind?

Dr. POGUE. Their rights are determined in an attempt to give each man his fair share of the oil, give him the same amount of oil that he would get if there was no restriction.

Representative WILLIAMS. Is that in proportion to the amount of acreage he owns?

Dr. POGUE. It isn't in proportion; it is more complicated than that. It is really in proportion to the size, the volume of his reservoir. When we say the acre-feet, that is the number of acres 1 foot thick; that is, if one man has a sand twice as thick as the other in the same surface area, he would have twice the number of acre-feet and twice the volume in reservoir if the porosity and other conditions of the sands are the same. But the formula can be worked out by multiplying the acre-feet of each man's property by the bottom-hole pressure of his property, then a very satisfactory and equitable formula can be developed, and is in process of evolution in the oil business. At the outset, as a matter of convenience, because the engineering is not known fully, and because of the cost of administration, the tendency was to give each man an allocation based on the initial gage of each well multiplied by the number of wells. Upon reflection you see that that is a bad formula because it forces a man, sets up competitive forces which induce a man to drill more wells than are really needed; and as that has been learned and experience gathered on it, that is in process of improvement. The acreage factor comes in, and the pressure factor comes in. The thing varies in different States and different fields. Bear in mind that we speak and consider from the vantage point of pretty broad knowledge. This thing as it develops, this technical knowledge, these economic factors, have to be borne in on operators and on public opinion and on courts; and especially it has to filter through legalistic minds in which the equity concepts are finally broad in appeal; and the process of evolution—I started to say slow when we consider that this new form of administrative law and procedure is only 12 years old in a gross way, and in a net way, to use the accountant's term, has only been intensively applied in the last 5 or 6 years; the marvel to me is that it works as well as it does and has as few complaints as it does rather than the contrary.

The CHAIRMAN. What you have to say implies apparently almost exclusively to a field which has already been drilled before the pro-rata formula has been applied to it. What would be the situation with respect to a new field which had not been drilled in which the acreage was in several different titles?

Dr. POGUE. Of course, the field has got to be drilled to some extent before it can produce and before allocation of demand has any practical meaning, so that the thing develops with the drilling.

The CHAIRMAN. The Department of the Interior in administering the public domain frequently requires the permittees or lessees on a particular field to agree to enter into a unit plan before they know what the field is going to produce. So that the operation of the formula is altogether in the future.

Dr. POGUE. The unit plan is a very good way to operate a field. Whenever a field is a unit, automatically it will be operated in the best way. The development of units is a common procedure. In the oil industry itself most companies favor that where possible. It has an uphill fight, because the small operator fears to tie in with his neighbors. It is an individualistic industry. Each leaseholder thinks he can operate more efficiently than anybody else. They really think that, they believe that, and they hate to turn over their operations to a committee; and it means a slower development than otherwise would be the case. The procedure usually is to divide it up in advance and make flexible arrangements to be adjudicated periodically as the outlines of the field are determined by actual drilling facts rather than hypothetical interpretations of the geology in advance of drilling.

The CHAIRMAN. In any event I suppose it might be said that the formula is in the process of development and that it will be rather difficult to say that it had reached perfection as yet.

Dr. POGUE. Not at all. I would say definitely it hasn't reached perfection. I think that I could write a pretty good formula. I think it would take some time to get it applied in every place. I think some of the formulas are fairly good, some are better than others.

The CHAIRMAN. Would you say that the problem of "hot oil" as it is popularly called may be a result, to some extent at least, of a feeling on the part of some operators that proration does not operate equitably?

Dr. POGUE. Well, I would think the main motive would be the very obvious one, that if your field is restricted, there is such a tremendous monetary reward to the man who can produce his oil wide open and if his moral strength is not of the proper caliber he will go around in the night and do it.

The CHAIRMAN. That is quite a problem, isn't it?

Dr. POGUE. It is not a practical problem at the moment. I don't think there is a great deal of "hot oil." I mean it is a problem of human nature of course.

The CHAIRMAN. Dr. Pogue, it is now quarter of one. If it is satisfactory to you we will recess now until 2:30 o'clock.

(Whereupon, a recess was taken at 1:45 o'clock until 2:30 o'clock the same day.)

AFTERNOON SESSION

The committee resumed at 2:35 p. m. on the expiration of the recess.

The CHAIRMAN. Will the committee please come to order? Dr. Pogue, you are ready to resume, I presume. Please proceed.

WIDE-OPEN VERSUS RESTRICTED PRODUCTION

Dr. POGUE. Mr. Chairman, to resume the testimony perhaps it would be desirable very quickly to review the main points that were covered this morning. I attempted to show that there were two ways to produce an oil well, wide open or restricted, that restricted flow gave more efficient recovery and a better cost curve over the life of the property, that any degree of restriction was better than open flow, but there was a best degree of restriction called the optimum rate which gave the most effective results. However, to gain the most effective optimum rate requires a much larger reserve than the old flush method of production. We call that reserve the optimum reserve. Therefore, in the process of stepping up our reserves from a flush size to an optimum size, it is necessary, logically necessary, physically necessary, to have a production control that will hold the oil in the ground and keep the incentive for discovery going.

That means that proration being the device that evolved for meeting this situation, starts out as a production control with conservation attributes. As it goes on, the conservation aspects increase and the end point, as I see it, is a device where conservation predominates in the production control aspect, and finally it recedes into the background.

That, in a few words, is my conception of this new instrumentality, this new administrative form, this new industrial type of activity that is represented by this changing thing called proration, and the fact that it is a changing thing, it has various attributes and components which in turn are shifting in time, means that you can get every type of opinion on it and there will be justification for that particular opinion, because most of the opinions will derive from the particular point of view from which this moving thing it looked at.

The CHAIRMAN. You have discussed it chiefly from a technical point of view, but your statement just now implies that it has a very practical aspect also. That must necessarily be true since it is a growing technique, so to speak.

Dr. POGUE. Precisely. The instrumentality, the means that are used, are technical and legal. The resultants from it are physical and economic.

The CHAIRMAN. Well now, are there any devices or methods of applying the engineering principles involved whereby what might seem to be an equitable application of the principle could be made to work inequitably? In other words, if I were a producer, could I apply technique that would give me a larger proportion out of my well than some other operator in the same field could get if he didn't use the particular device that I use?

Dr. POGUE. I don't believe that the differences or the differentials that might be established would be derived from that source so much as from administrative imperfections or evasions of other types. I think that the technology itself would not be primarily the cause of inequities.

The CHAIRMAN. Well, there is such a thing as introducing gas into a field for the purpose of stimulating the productivity of the well, is there not?

Dr. POGUE. Oh, yes.

The CHAIRMAN. How would that operate upon a proration plan? What would be the effect of it?

Dr. POGUE. The reinjection of the gas is an advanced procedure to which we are tending on a broader and broader front where the gas is not commercially needed, or has a market; and even in some cases where it has; the reinjection or the recycling of the gas maintains the pressure, helps maintain it, and gives a larger recovery of the oil. Where that happens it requires a cooperative action and a careful accounting to see that the equities are preserved. Of course, equities have to be established by the courts. The customary redress is that each owner always has recourse to the law and these new formulas and advanced methods get into action gradually through being validated by the legal procedure. That is the reason that the practice must lag behind the theory. The engineers have learned—in fact the whole profession of petroleum engineering is derived from the practice of proration. Before we had proration there was no way to understand the production of oil except in the flush stage but delayed production created a tremendous body of engineering knowledge. We well know any new technique takes some time before it gets a following, even among the technicians. The opinions develop by experimentation, finally get adopted by a sufficient group and then they begin to be tried out and have to be validated in the courts, and that procedure takes time and when that is established the engineers have advanced a step further and the thing goes forward in that recycling manner.

Now to come back more to the finishing up of the summary story. The mechanism by means of which proration directed consists, as we know, of the State conservation commissions, the Interstate Oil Compact Commission and certain functions performed by the Federal Government, such as the enforcement of the Connally Act and the promulgation of advisory estimates of demand on the part of the U. S. Bureau of Mines. These bodies and functions, in my judgment, are adequate in scope and need no amplification, although I think there is room for improved effectiveness and more advanced technique, which time should bring about.

ADMINISTRATION OF PRORATION ¹

Dr. POGUE. Now the administration of proration is a very difficult problem, speaking now of the administration of this technique which is in process of change itself. The administrative matter is a difficult problem, not only because the principles of the movement are in process of evolution but also because of the many special interests involved which bring pressures to bear upon the administrative bodies for preferential treatment. The administrative difficulties, I think, will abate as standards of conservation become more thoroughly understood and established, and as the reserves permit a more complete coordination between the effective optimum rate and market demand.

In the transition period, however, it seems to me that the very imperfections of State control, owing to limitations of authority and

¹ Ernest O. Thompson, member, Texas Railroad Commission testified on this subject before the committee on October 3, 1939. His testimony is included in Hearings, Part 15.

to interstate rivalries, are in a measure a good thing because they offer protection against abuses. They leave enough competition in the system so that we have the advantages of competition, although those advantages are often very unpopular with operators, large and small alike. So long as market demand must be an integral part of the system, before we get the optimum reserve, the market demand can be put to one side. I believe that a too perfect regulation of supply might be undesirable because it would create undue confidence in the price stability of the industry and would encourage unwise investments.

Under present conditions business must remain continuously alert on the competitive front and it can't afford to rely heavily upon the States and the Government to maintain a profitable condition for it. I believe that is a healthy condition. So that I wouldn't be disposed to worry too much about the imperfections of the system; I would worry a little more if the system was too perfect and if human nature at the same time was no more perfect than it is.

MR. O'CONNELL. When you spoke of competition a moment ago did you mean competition in the industry or competition between the various States?

DR. POGUE. I was speaking at the moment in reference to the presence of competition between the States.

MR. O'CONNELL. Not in the industry?

DR. POGUE. I would be suspicious of a perfect quota system where each State was given a fixed quota of production; if it couldn't be altered and no State had a word to say about it, it would be too rigid a system. I would prefer to have somewhat imperfect quotas with the States competing. I see no objection to now and then the whole system breaking down, to take an extreme example. We could come back again. So these periodic crises don't seem to bother my view of the subject as much as it seems to bother the more popular view of it.

I think, too, that consumers are protected by the manner in which proration functions, although not represented in the meetings of proration authorities. Proration insures against scarcity prices in the future by creating reserves far greater than necessary to maintain current production. If our thesis of conservation is correct, that it creates more oil, obviously it creates a greater future supply than we would have without it.

EFFECT OF PRORATION ON PRICE

DR. POGUE. Prices are dependent upon the relations of supply and demand; with a larger supply our cost should be lower and our prices should be lower, and I believe that has been the case up to date. I believe it will continue to be the case. I think that the petroleum industry, because of its peculiarities, is one in which the worries might be that prices would be too low, rather than too high. In respect to price movements, proration exerts its influence only within a narrow economic zone. I don't deny that the operation of restricting supply doesn't have an effect upon price. It has an effect upon price and an effect upon cost, of course, but I think the effect upon price is confined to a very narrow economic zone, and the effect is too smooth out extreme fluctuations in price, rather than to create artificial price

levels or to valorize, as we say—that is, artificially create values. There are two automatic safeguards against uneconomic prices under the operation of proration. First, uneconomic prices would encourage overinvestment in producing capacity, and the pressure of capital for return under those circumstances would affect a breakdown of the controls in the State where the pressure was greatest, and the strength of resistance was less; in breaking down then State competition would enforce the lower price throughout the other States.

Proration doesn't destroy enough of the functional aspect of price; it leaves price perfectly free to influence search and discovery and drilling and those things that build up the elements of supply right down to the well. They are simply throttling the supply at the well-head; that isn't sufficient to affect price, except within a very narrow and one might say innocuous zone. This is counter, perhaps, to the prevailing view. I believe that many people think that it can affect price on a grand scale and they are disappointed that it doesn't. I don't think it can. We need have little worry about it creating much of a price effect.

The CHAIRMAN. Well, the amount of effect which it has is dependent. is it not, upon the gravity of the crisis, to use the word you employed a few moments ago?

Dr. POGUE. Well, I think what it does—it is an effectual guarantee that you won't have these extremely chaotic dips in the price structure that we used to witness and for that I don't think anyone would advocate a system or a system could survive which would give us these extremely wide amplitudes of swing. In the old days in a given year the price of oil would repeatedly move over a zone of 100 percent; that is, it would go up 100 percent on the up side of the cycle and come down 50 percent on the down side, or even greater extremes of movement.

Now, apparently, judging from what has been the history of the price movement in the proration period, it moves up 10 or 20 cents and down 10 or 20 cents; a very narrow zone, and apparently in pretty close conformance with the movement of general prices. It has been a smoothing effect. In price discussions we are too prone to look upon price as a result of something, something that affects the welfare of the people. Perhaps the most important aspect of price is what we call the functional aspect of price; that is the use of price or the function price to regulate the system itself, to regulate the flow of capital and the relations of supply and demand, and that functional aspect is almost unimpaired; it is shifted a little in time; it takes a little longer for it to manifest itself, but it works, nevertheless, and it will work.

In the second place—and I think this is quite important—the integrated character of a large segment of the petroleum industry would also prevent the transmission of an abnormal price. Suppose the price goes too high. What happens? The integrated character of a portion of the industry transmits the pressure of the crude supply behind the proration barrier right through to the consumer because of the fact that the integrated operator sticks closer to the costs of the whole operation.

Inevitably, then, it is unintegrated.

The CHAIRMAN. All the way through the operation?

Dr. POGUE. Yes.

The CHAIRMAN. That is to say, production, transportation, refining, and distribution?

Dr. POGUE. I would say it is the over-all effect that would keep the production in line with the costs of the best practice. In other words, I don't see how it is possible, even under proration, to get any substantial degree of valorization in the oil business that would last for any length of time. I think attempts to do it would be shortsighted; I don't believe the industry, by and large, would attempt to do it. If they did, if they were shortsighted enough to attempt that, I think the natural economic forces would defeat them in the purpose.

I feel quite sure of that. In other words, proration under the system we now have, under State-coordinated control and with a semi-integrated industry and with a degree of competition present, doesn't destroy enough competition to have much effect on price. The smoothing effect on price is not due wholly to proration. It is due just as much to the conservation aspect of it. For example, take a given pool, which is a unit in our production. In the old days, under flush conditions, production in a few months would rise to church steeple peaks and in a few months decline 50 or 75 percent and trail off to a slower rate of decline. Naturally the cost curve would be somewhat similar to the production curve. If I take that curve and cut off the church steeple, smooth it out into a long, flat curve, naturally you affect the cost curve, and if that transpires for the industry as a whole, the cost curve of the entire industry is smoothed and the price curve must follow with some degree of conformance to the cost curve. You give it that smoothing effect. You get it under conservation. You can't conserve oil without retarding rate of flow. You can't retard the rate of flow without having a smoothing effect on price. Fortunately, the smoothing effect on price is something that I can see no one objecting to, because who wants the wild gyrations of price that you have in an industry such as oil if it is left to the free operation of the rule of capture. What you are after is a more even price movement and a price level that conforms pretty closely to cost, leaving just enough profit in the system to keep the requisite growth in volume and in efficiency and in technology actively at work.

The CHAIRMAN. The conclusion then is that if the hills and valleys of production are smoothed out, then the hills and valleys of price likewise are smoothed out.

Dr. POGUE. You can't help it. It derives from the physical nature of the production curve itself, and to attribute all of that, or the majority of that, to the administration of proration I think is to take a rather superficial view of a rather complex and involved procedure.

Mr. O'CONNELL. With what you have said about smoothing out the curve of production being a desirable thing, would you say that was also applicable in other fields than oil? I take it the statement was very general.

Dr. POGUE. I am glad you brought up that point. I am not familiar enough with the costs in other commodities offhand to cite examples on the flush of the moment, but you have a cost amplitude in oil that is a difference between the lowest cost and the highest cost that is wider than any other commodity, I think, whatsoever. The reason of that, when we stop to think, is tied in with this rate

of production. You can take an oil well and produce it wide open and the cost during the flush period is tremendously low. It may not be but 2 or 3 cents a barrel. The cost in the later period may be \$1 a barrel. You have an amplitude there of—what is it?—1,000, maybe several thousand percent, tremendous amplitude. Then at the same time, geographically you have these flush fields with these low costs competing with the settled fields with the high costs, so that the nature of the production curve of oil which is derived from its liquidity and the rule of capture on the legal side, creates a price situation that is disastrous if we find the oil too rapidly. And when we find the technology for finding the oil as we have, it comes along too rapidly and the price mechanism breaks down and needs help, or appears to need help.

I explained this morning how, if you left the price mechanism to solve the problem alone, it will solve it by preventing conservation, using up the reserve wastefully and getting the thing in balance that way. That was one way in which the development would have gone. It didn't elect to go in that direction. It went in the other direction and we have what we are discussing today, this new mechanism.

But the price thing is involved in the conservation part of it, as well as in the production-control part of it. At least this dual concept emerges. Physically, you can devise no way of conserving oil without retarding the rate of flow, and you can devise no way of retarding the rate of flow and have exactly the same price reaction that you would have had if you did none of these things. You have got to take it. It isn't a question of whether the price reaction is right or wrong, it is a question of whether the conservation reaction is what you want to retain or not.

Furthermore, this question arises: Is the price of oil today higher or lower under proration than it would have been if we had had no proration? Now, usually the question is phrased: What would happen to the price of oil if you would open up all our production? Obviously, it would go down. But is the price of oil higher or lower now than it would have been had we had no proration? It is a more realistic question, a more interesting question, and a question, of course, that can't be answered. No one knows unless he went back and tried an experiment, which is obviously impossible.

But on theory, and on such knowledge as I have of the price structure, I am of the opinion that the price of oil today would have been higher if we had never devised this proration mechanism. Our reserve would have been lower, also, and our costs would have been different.¹

The CHAIRMAN. You feel that proration has been a distinct benefit to the industry?

Dr. POGUE. I do; but I think it has been more of a benefit to the country—that is, to the consumer—than it has been to the industry.

The CHAIRMAN. I used the phrase meaning the industry in relation to the public.

Dr. POGUE. Sometimes the distinction is made; I appreciate that.

¹ This subject is resumed on p. 7136, *infra*.

NEED FOR BEST OBTAINABLE ENGINEERING STANDARDS IN PRORATION

The CHAIRMAN. But you feel, do you, that a standard formula of proration would be a desirable thing?

Dr. POGUE. No; I don't think that. As I see any economic organism, I think it is in constant course of change. I think that the formulae and practices should be improved as rapidly as feasible.

The CHAIRMAN. You misunderstand me.

Dr. POGUE. I think there should be standards and those standards should be the best obtainable.

The CHAIRMAN. And they should have universal application.

Dr. POGUE. Oh, yes; and I think they tend to be standardized. As a matter of fact, the thing that comes first is the conservation law. I have read and studied the conservation laws of the various States. The conservation laws of the latest States to pass them are far better documents than those of the earlier States. The more advanced conservation laws are splendid documents. The laws contain everything that the engineer needs.

Now, the engineering procedures have advanced toward the concept of the laws. These engineering procedures lag, of course, in getting into application because the administrators of proration take them up and apply them and then they have to go through this period of litigation.

The CHAIRMAN. There are differences, then, in the laws of the various States?

Dr. POGUE. Yes; but the differences in the laws—I think that the administrative law differs more than the statute laws. The statute laws are very broad. The laws are adequate to accommodate perfection in this field, if one can imagine such a thing.

The CHAIRMAN. A moment ago you said, or I understood you to say, that competition among the States in the production of oil—that is, in the rate at which they allowed the oil to come from the market—was a good thing.

Dr. POGUE. Yes; I think competition between the States—

The CHAIRMAN (interposing). Isn't there a little conflict there between the two statements: First, that there should be a standard of universal application; and, second, that the competition among the States which arises from the differences in the administration of the proration law is also a desirable thing?

Dr. POGUE. I am glad you raise that point because I think I can resolve the apparent conflict. I think that the engineering criteria should be standardized; that is, should be the best obtainable, and, so far as possible, the best in every location. I wouldn't standardize that perfectly because we don't know what the best is, and the laws of competition mean that a lot of things that we don't think much of turn out to be the best. You must have some divergence, otherwise you stagnate.

But the thing where I think competition is important is on the economic side in this intermediate expedient of balancing supply and demand through market-demand quotas. I am quite willing to see some degree of imperfection in that because I think that is an expedient, and I don't think perfection can be obtained, nor do I think it desirable. I think those who want perfection in those things are interested more in price than in conservation.

The CHAIRMAN. The approximation of perfection, then, rather than perfection is the desirable end?

Dr. POGUE. Well, that isn't quite the idea. I want to see the thing advance. I want enough competition in it to be sure that the good old system of trial and error is at work, because I think that no one of us knows the answer. I think the blend of the effort of everyone under the competitive process gives a final end point that is better than anything one can plan for earlier in the stage, just as I think this thing has worked out better than anyone imagined it would, despite the fact that there are plenty of flaws in it, and that there are plenty of complaints about it, and that it may not be the final answer. It may not work out. I see grave dangers in the path. If it is interfered with too much or if it is turned into economical control, diverted from its conservation objectives, or if it becomes a regulation of production control, and there is an attempt to use it for price-fixing purposes and that gets uppermost, why then I think the thing will go the wrong way. I think it is somewhere between 50 and 100 in its evolution. Whether it keeps going in the right direction or gets diverted is partly in the hands of this committee that I am addressing, it is partly in the hands of the oil industry, it is partly in the hands of the State commissioners. What these three groups of people will do with it, I don't know. I think they have its fate within their control so far as groups can control the destiny of a movement. Perhaps it is even broader in its implication than that.

Mr. O'CONNELL. Doctor, I have a little difficulty in seeing why you feel that competition between States is the desirable type of competition which by trial and error will result in a better situation, let me say.

Dr. POGUE. On the supply-and-demand side I don't want to see too much rigidity in the attempts to artificially balance those things. I think all the troubles and complaints and difficulties that we have with the thing are because of the balancing of supply and demand that enters into the picture. That is something that is normally done by the free interplay of the market place.

Mr. O'CONNELL. I understood—I may be wrong—that you feel there are two desirable things attained by proration; one being conservation and the other one being the bringing of the supply into some reasonable relationship to the demand. Is that a fair statement?

Dr. POGUE. That is a fair statement, but not quite what I have in mind. We don't have to worry about supply balancing demand. It is bound to, always. What we mean when we say it should balance demand is that it should balance demand and not wreck the activity in the way of doing it.

Mr. O'CONNELL. Let me give you a hypothetical question. If the supply of oil were inexhaustible would you believe there was any justification for proration?

Dr. POGUE. I have thought of that question, and that is a hypothetical question. It would depend upon the bearing on cost. If I thought that the cost could be lowered—

Mr. O'CONNELL (interposing). The reason I asked was because you did discuss the leveling off of the prices.

Dr. POGUE. I don't see that one should answer a hypothetical question, because one's answer is hypothetical, and therefore useless.

Mr. O'CONNELL. I will withdraw the question then.

NECESSITY OF PRORATION FOR CONSERVATION OF UNKNOWN OIL RESERVES

Dr. POGUE. Because I don't know, we shouldn't proceed on the basis that the supply is inexhaustible. It may be. I doubt if it is. I see no evidence of exhaustion, but as long as we have the option, let's assume that it is exhaustible and act on that premise and then if we are wrong we haven't done as much harm as the other way.

Mr. O'CONNELL. I gained the impression from something you said a little while ago that you felt there was a valid reason for proration quite apart from the aspect of conservation.

Dr. POGUE. No; I said the price-smoothing effect of proration-conservation was something that one couldn't object to, that it was not an antisocial attribute, and whether you like it or not, you can't get conservation without it. You have that as a byproduct and you can either accept it or not. You cannot accept it because you have got it. You have to destroy your conservation to get rid of it.

Mr. O'CONNELL. I understood you to say you believe that was a desirable byproduct of the conservation aspect of the problem and if we eliminate the conservation aspect I take it we have the same theory espoused by all people who advocate control of production.

Dr. POGUE. I will answer the hypothetical question. If I were convinced that the supply of oil was inexhaustible, and if I were convinced that the costs would equal under the two circumstances, then I would see no occasion for proration. If I thought there were some device to lower costs, even though the supply were inexhaustible, I would tend to favor that if it left enough freedom of competition and individual effort.

Mr. O'CONNELL. Isn't that another way of saying you would not be willing to let free and untrammelled competition prevail unless it would necessarily result in a lower price?

Dr. POGUE. No; my philosophy doesn't involve price fixing. I oppose it. I fought it very actively in my short experience with the N. R. A. when I was adviser on the N. R. A. on the code and, to my great disappointment, it got into the code. But it was never invoked.

My record is absolutely clear. I am definitely opposed to the artificial manipulation of prices by anyone, by any group. I think it is undesirable.

The CHAIRMAN. Private or public.

Dr. POGUE. Private or public.

The CHAIRMAN. Twenty years or more ago it was quite usual to find scientists and engineers predicting that our sources of oil were about to be exhausted, was it not?

Dr. POGUE. Quite so.

The CHAIRMAN. And now you testify that you see no evidences of exhaustion?

Dr. POGUE. That is correct.

The CHAIRMAN. A very interesting change. It seems to harmonize with the facts, of course.

Dr. POGUE. The reasons are these: The force of technology is so powerful, so tremendous, and the technological achievements under the petroleum industry have been positively so brilliant, so tremendous—I don't like to use large terms unless the concepts to be conveyed are equally large—that those of us who are close to those developments can scarcely appreciate the magnitude of them.

When I first began studying the oil business, 3,000 feet was a deep well. Today we are going down to 15,000 feet, and my friends among the engineers concerned with that phase of the technology talk confidently about 20,000 feet shortly. When you go from 3,000 to 15,000 feet, you multiply the depth fivefold. The Kettleman Hills oil field, one of our tremendous fields, was known—that is the structure was known or suspected to be an oil field for many years before the technology, metallurgy permitted the industry to drill that field.

That was a discovery that would have been made earlier had the technology advanced. We have invented entirely new methods of finding oil. We have invented new methods of producing oil, of using the natural forces, of making two blades of grass grow where one grew before. There was an interesting book that came on my desk just before I left for Washington the other day, published by the W. P. A., quite interesting, in which they have some charts showing the discovery of oil fields by methods of technology used and the geophysical aspects at that stage. We are developing new methods of soil analysis; we are finding that the oil fields around the edges leak mild traces of gas; technicians have developed methods of sampling the soil and analyzing the gas and determining the traces of special hydrocarbons, plotting it on a map. That is a new instrumentality that is just coming in.

The whole thing is advancing in every phase and form, and the point is that in the last few years finding results per effort has been greater than at any time in the industry. That may change tomorrow; I mean to say that up to date there is no evidence at all that our ability to find oil is weakening. They are merely estimates based on the failure to properly appraise the technological factor.

I am not impressed, likewise, with the ability of anyone to forecast conditions. I don't know of anyone who has been very successful about it. Those things always fail. One can only detect the trends and directions or perhaps judge the ways and movements.

STATE COMPACT PLAN OF PRORATION

Dr. POGUE. May I conclude my more formal statement and then open myself for any further questions that the committee may wish to place with this final idea? In proration, the petroleum industry has pioneered in the development of a new administrative form for the solution of one of the most difficult problems that has taxed the ingenuity of our industrial system. Through the medium of State conservation commissions, working in close contact with field conditions, responsive to developing technological knowledge, and coordinated by the Interstate Oil Compact Commission, we have seen created a new mechanism which constitutes one of the most significant experiments in our entire economy today. This is a new administrative form, gentlemen, that we are seeing develop before our eyes. In this time of economic change, when hundreds of experiments in centralized planning are being carried on, many of them in the city of Washington, I think it is fortunate that the States and the oil industry have been left unimpeded and even have been encouraged in their efforts to perfect this new decentralized administrative instrument, which may not only, not necessarily, but which may not only yield such fruitful results in

the specific field of oil, but, in my judgment, may also point the way to the solution of some of our other great industrial problems.

After all, I am a technician, and with all of our technical knowledge, with all of our planning, with all of our much-vaunted ability to manage, we still rely on the good old system of trial and error to find out what is good and what is bad. Our society, our Nation, is experimenting today with new forms of industrial control. The overwhelming majority—in fact, all but one—of these experiments head up in Washington, are centralized in this city. Here is a lone experiment, older in experience than any of these others, more advanced, seeming at least to some of us to be doing a good job, having plenty of flaws, plenty of errors, but, nevertheless, evolving apparently in the right direction. Isn't it important wholly aside from the issue at stake to see this experiment develop further? May it not prove to be a more potent and useful instrument than some of these other things that are being developed? Whether or no, if we are experimenting, let's experiment on a broad front. Let's see what this device of the States coordinated by a compact between the States will do. Surely it hasn't failed. It is changing this great industry. The way the industry has initiated this thing and is following through, I think the results viewed today against the objections and flaws balance the latter. I think something is to be said on the score of trial and error over a broader front entirely aside from the merits and demerits of proration viewed narrowly as an oil problem. I didn't mean to get into that proration, but, nevertheless, I did.

The CHAIRMAN. It is quite interesting. The State-compact plan, of course, is recognized by the Constitution of the United States, and it is a method for the adjustment of problems that affect groups of States and regions which is favored by many observers, so that it is quite all right to indulge in the proration.

Mr. Cox, did you care to ask Dr. Pogue any questions?

Mr. Cox. Dr. Pogue, is it your considered opinion that the proration laws of the several States have been administered ¹ primarily in the interest of conservation and in indifference to the question of price?

EFFECT OF PRORATION ON PRICE ²

Dr. POGUE. I think the administration of the proration laws has been administered, broadly speaking, with improving effectiveness. I can easily conceive that the price resultant may have been exaggerated. I will put it this way: there is a misconception on the price effect of proration. I think that there is room for improvement in the administering conduct. I think that improvement is in process; the problem is infinitely complex, more complex than appears to the general observer, because it has to proceed in coordination with existing public opinion, knowledge, and the willingness of the courts to go along. There are occasional actions on the part of the administrative authorities that seem to indicate that for short times and for emergency periods price is quite uppermost. I don't think it matters much. I think the important thing is the underlying evolution of this instrumentality. What people think and what they

¹ Col. Ernest O. Thompson, member, Texas Railroad Commission, testified on the administration of proration in Hearings, Part 15.

² This subject is resumed from p. 7131, *supra*.

have in mind when they do it and what they think they are doing is not so important as what comes out of it.

Mr. Cox. Do you mean by part of that answer that although the State authorities may have thought they were affecting price they weren't affecting price?

Dr. POGUE. No; I don't mean that. I don't know what goes on in the minds of the State authorities. I don't know anything more about that aspect of it than anyone else. I suppose everybody is interested in price. I see no reason why anyone shouldn't have it in mind when any action is going on on price. The only point I believe, to go back to first principles, is that the price resultants don't seem to correspond with price plans and ideas in this field or any other. I think the finest way to get prices down is to try to put them up, and vice versa. It so happens (and this is one great difficulty today with planning in economics) that anything you do has a series of effects, primary, secondary, tertiary, and for some strange, inscrutable reason the secondary results are usually the reverse of the primary, therefore you usually get just the reverse of what you plan to get. That is the reason why we don't get along better in our managed economy. That is the fundamental reason. In a political setting you have got to respond to public opinion. Any elected officer is going to respond to the pressure of his constituents. I have never been an elected officer, but I assume they act in that way or they don't long remain elected officers, and that is part of the democratic process. Naturally, every producer of oil is interested in a good price. If you let him have his way about it you will have nothing but price, but I think that the industry by and large is mature enough to realize that it is a mass production industry. I think that any examination of this industry indicates that the prices are very reasonable; you don't even have to look at the figures to know that. There couldn't be the number of people riding around in cars if that were not the case.

There is the technology of this industry. I forgot this morning to mention perhaps the greatest safeguard. You don't have to worry about price valorization in an industry that has such a vital and dominating technology as this. All the brains in the oil industry, even if they were intent on doing it and had the cooperation of the Government, couldn't valorize this price and get away with it very long. These economic forces, I think, are greater than the power of everyone working in the same direction. Fortunately, they don't all work in the same direction. The thing works out all right. I can't see what all the shouting is about on this price thing. You can stop a hundred oil men on the street and half of them will tell you, "Of course it is a price-fixing measure." I don't think they know what they are talking about. They want it to be, they would make it one if they could, but they can't.

Mr. Cox. It is a mistaken belief?

Dr. POGUE. It is a mistaken degree. I have explained—it is obvious, of course—that you have a different price when you level the supply, but to hear some people talk you would think that the objective of our society is to have ten-cent oil. It would be fine if the cost were eight cents. It would be pretty bad—well, you couldn't have price below cost very long; you can't have it above cost very

long unless you have a completely regimented economy. The only advantage, I tried to illustrate, on the economic side of the effect on price is the ability to abuse this thing. Of course anything can be abused. A certain degree of imperfection is a pretty good thing. I want to see it perfect on the technical side. I don't want to see it perfect on the other side. As the thing evolves you can get away from, say, the aspect of economic control. I don't like market demand because it raises all these questions and there is no resolution of these questions; it makes the thing appear different from what it is.

Mr. Cox. While you are on that point, do you think it would be a good thing, then, Mr. Pogue, to stop those estimates of market demand which the Department of Interior puts out?

Dr. POGUE. I drew up the first estimates in market demand and I have got to be pretty stalwart to object. No; I do not think so. I have tried to explain, and it is very hard to so quickly get these points, but for full conservation you have got to move from a flush reserve to an optimum reserve, you have got to move from, let us say, a 10-year supply of oil to a 20-year supply. I don't know what the optimum is. If you give me 100 engineers and a year's time, I can come back and tell you; it is a big engineering job to do. We have got to move from a 10-year reserve to a 20-year reserve or a 25-year reserve. Let us say we have got to move from 10 billion barrels to 25 billions, just for the sake of the argument. Two or three years ago we had 12 billion barrels. This year, according to official estimates, we have 17 billion. According to the work we have done in our little shop it is our opinion that we have got 22 billion. Somewhere between 25, 27, 28 is the optimum. Now, how can you move from a 10-year reserve to a 20-year reserve unless you artificially balance supply and demand so long as the rule of capture is functioning and so long as it is more advantageous for a man to get his stuff quick than to wait for it? You just can't figure out a way. Maybe conservation is too much trouble to get. I don't think so. You have either got to reject conservation or you have got to have artificial help in this transition period, and that is all we are going through. The thing doesn't take shape as you look at it, quickly and superficially. This thing is terribly involved. It is hard to see what it is, because if you look at it too close you see a lot of trees, you see a lot of objections, you see flaw after flaw. The surprising thing to me is not that there are so many objections to it but that it functions as well as it does. I don't think you could have planned a thing that would have worked. Somehow or other the thing is working and it is progressing. Why are these reserve estimates going up? Why are the experts, the engineers, each time they get together in the last 2 or 3 years, getting higher figures? It is because in part we are finding oil more rapidly and because in part they are realizing that this delayed production gives you larger recoveries. You haven't called many engineers. This oil is a technological, engineering industry. You perhaps have one or two engineers out of 30 witnesses. I haven't counted them. You could call a hundred engineers and, if you got the best ones, you would get the same story, I think, from every one of them. You would get differences of opinion on the minor details, to be sure, but on the broad principles the same.

Mr. Cox. One more question, Dr. Pogue. In this transition period which you say we are moving through to the point where we have an optimum reserve, do you think it is desirable or necessary at any time to completely shut down the production in any oil field?

Dr. POGUE. No; I don't think it is necessary to do that. I explained this morning that I thought that was an interesting emotional reaction. I don't see what it has to do with what we are talking about.

Mr. Cox. I was just curious to see what your considered opinion was of that sort of action as a conservation measure.

Dr. POGUE. I think it is an episode—there are thousands of episodes—a rather interesting one, extraordinarily interesting.

Mr. Cox. There seems to be a series of episodes.

Dr. POGUE. But unrelated episodes don't constitute a development.

The CHAIRMAN. That was not a conservation episode so much as a price regulation episode, wasn't it?

Dr. POGUE. I must say that I don't see the conservation bearing of it very strongly.

The CHAIRMAN. That was the impression that I got, while your statement was the other way, maybe inadvertently.

Mr. Cox. Suppose instead of that situation you shut down all the wells for, say, 2 days. Mr. Pogue, would you say that was a legitimate conservation measure?

Dr. POGUE. Two days?

Mr. Cox. Instead of shutting them down completely.

Dr. POGUE. You are referring to the so-called Saturday and Sunday shut-downs. That is simply another way of curtailing supply to demand. It is just more convenient to do it that way. That isn't really a shut-down.

Mr. Cox. You don't regard that in the same way as a complete shut-down.

Dr. POGUE. Oh, no; I think in certain fields it probably does the wells a benefit by rest, maybe; maybe the pressure is equalized, but all the wells weren't shut down. I think some of the marginal wells were left over.

Mr. BERQUIST. I would like to ask a question with regard to the balancing of supply and demand. Supply and demand as you indicated aren't in balance at any given time, are they? It is a matter of consideration of balancing demand with supply at an acceptable price or at a price, isn't it?

Dr. POGUE. Of course price is implied in every balance of supply and demand. That goes without saying. Fortunately in oil the price of the main product, gasoline, is very inelastic. If you were dealing with a highly elastic commodity you would get into some difficulties there that aren't very practical in oil. In other words; this quota system involves estimating demand a month ahead and then the estimators of demand never consider price because the price fluctuations that take place within that period are so mild that we don't know the effect they have on demand, if indeed they have any effect, so as a practical matter that doesn't enter in. Also, as a practical matter, you could run this thing just as well without ever estimating demand. There would be a technique that I think is superior to the one now used. We use the one simply because it was established that way and things don't change too rapidly if they get

institutionalized, but you could work on inventories and just keep inventories from piling up and pay no attention to demand. That would be automatic.

Mr. BERQUIST. Wouldn't it be franker to refer to balancing of supply and demand at a dollar a barrel or a dollar and a quarter a barrel for crude, or some known figure? It seems that a shut-down was rather a reflection of 20 cents below what the price had been, was an occasion for cutting it off, and naturally there was a withdrawal of supply.

Dr. POGUE. Your first question, whether it would be fairer to do that, I don't know how to bring in the fairness in a problem of this kind. I think, at least it is my observation, that in the range of price fluctuations that have taken place in recent years the demand hasn't altered very much.

Mr. BERQUIST. That is very true, but you had the other side of supply being adjusted so that the price kept at a fairly constant level. Of course we had a dollar or a dollar ten, a dollar thirty-five crude for a long time. That was because a pretty good job was being made of keeping back the supply, so that your demand was adequate to keep the price at that level.

Dr. POGUE. Well, I think there is too much emphasis placed on the price of crude. It doesn't make much difference to the consumer. It is the price of gasoline that counts. The price of crude is an intra-industry problem and as a matter of fact when these quotas are calculated you don't calculate the demand for crude directly. The procedure followed by the Bureau of Mines is to estimate the demand for gasoline and then figure back from gasoline and see how much crude it would take to balance out in view of stocks and everything. It so happens that your crude is \$1. The raw material cost of a gallon of gasoline is $2\frac{1}{2}$ to 3 cents, and don't you see that a 10- or 15- or 20- or 25-percent variation in the price of crude gets damped down, just mathematically damped down, not through any action of anybody, but there are so many fixed charges in a gallon of gasoline by the time it gets to the consumer, in view of the 5-cent tax, that theoretically you could double the price of crude and it wouldn't run the price of gasoline up, it wouldn't double the price of gasoline to the consumer, it would be damped down. There would be a very important change to it, but I am pointing out the purposes of setting quotas and bringing in this implicit price aspect of supply and demand; as a practical problem we don't bother with it very much. I am convinced when the boys in the Bureau of Mines draw up their monthly estimates they don't pay any attention at all to price. I don't know that, I haven't asked them, but I venture to say they don't. I don't see any reason why they should.

Mr. Cox. That can't quite be literally true, Dr. Pogue; they must make some assumptions.

Dr. POGUE. They do it from month to month. Right now, what is this, September? They are probably drawing up the October, maybe the November, estimates at the present time, or they will shortly.

Mr. Cox. All I mean is they must have to assume a sort of going price, because if gasoline were a dollar and a half a gallon it might have an appreciable effect?

Dr. POGUE. If you are going to make unnatural assumptions——

Mr. Cox. They have to make some natural assumptions, don't they?

Dr. POGUE. The consumption of gasoline is so inelastic that a half a cent or quarter of a cent change doesn't make any difference in the period under study. You don't have violent changes.

Mr. Cox. Then would it be fair to say they would simply assume a price within 2 or 3 cents of existing price?

Dr. POGUE. I have made up hundreds of those things myself and I don't know what runs through anybody else's mind, but I know I wouldn't waste any time on thinking about a price if I were drawing the thing up.

The CHAIRMAN. What factors would you take into consideration?

Dr. POGUE. Well, as a matter of fact they have developed very elaborate, involved technique, some of which I had a hand in using, but I think if I were doing it now I could get just about as good results using a 12-month moving average of the preceding 12 months' consumption, just project it a month and call it that; you don't have to be exact on the thing.

Mr. Cox. When you finished you would have an estimate of the market demand for gasoline, is that correct?

Dr. POGUE. When I finished I would convert it back into crude oil.

Mr. Cox. At one point, you would have an estimate of the demand for gasoline?

Dr. POGUE. Oh, yes.

Mr. Cox. And that would be an estimate as to market demand, completely detached from any considerations of price?

Dr. POGUE. Well, there is no such thing as a market demand without price. For practical purposes consumption wouldn't be affected materially by any changes in price that would be likely to transpire. That is an interesting academic concept but from a practical standpoint you don't have to bother with it much.

The CHAIRMAN. Well, at least it is clear, Dr. Pogue, that the proration plan as administered under the various conservation laws does have the effect of increasing the reserves of oil.

Dr. POGUE. In my judgment, yes; undeniably so.

The CHAIRMAN. And would it be a proper inference to draw that as the reserves of oil increase as a result of this method, and also as a result of improved technology in the search for oil, that the normal effect would be a lowering of the price of crude?

Dr. POGUE. Yes; I think that is correct. It would almost have to happen that way, everything else being equal; I mean if you didn't have some other——

The CHAIRMAN (interposing). In other words, as science improves the methods of extraction and uncovers new reservoirs, and we have a larger supply on which to draw, the natural effect, everything else being equal, would be a reduction of the price, since the supply increases?

Dr. POGUE. Precisely. It is the same old force of technology which is so powerful in this industry, giving you a declining price level and whether you like it or not that is going to continue unless you stop the competitive forces that create this technology. That is all there is to it. We have got a problem in oil not of worrying about

the consumer being gypped by an artificially high price. If we have any problem it is a problem of overage and keeping the industry together by avoiding too low prices. I mean there is more danger of the price level of oil being too low than being too high. So powerful is the technological factor that it leaves human nature out of the equation.

The CHAIRMAN. It is inevitable that we must have some consideration for price; we must have some consideration for profit. As a matter of fact, when President Roosevelt sent his message to Congress recommending the appointment of this committee,¹ he stated in that message over and over again that the purpose of the study as he saw it was to maintain the system of free private enterprise for profit, so personally I see no objection to the profit motive in business. We must have it if we are going to maintain business.

Dr. POGUE. Unless we change our system.

The CHAIRMAN. Private enterprise under this system.

Dr. POGUE. I think the problem in oil is likely to be how to make a sufficient profit rather than to have the consumer worry about too much profit. This technological factor is unbeatable. I don't think anybody knows how to change it.

The CHAIRMAN. But the question which is constantly rising is whether or not any particular system of administration in this or any other industry or any particular system of control of operation works to the disadvantage of some and the advantage of others.

Dr. POGUE. Precisely.

The CHAIRMAN. So the concentration of power over the use of commodities as well as the production and distribution of them—

Dr. POGUE. I think that is quite right. The committee is quite wise in being concerned with those very considerations. I merely have attempted to sketch the economic forces which I believe are adequate safeguards against the abuse of this thing. Now, any instrumentality is subject to abuse. I would like to see this instrumentality evolve along sound and constructive lines, and what I mean by sound and constructive lines are those of maximizing the value of the resource to society, making this a good, effective industry, profitable but not too profitable; stable but not too stable; but making headway and furthering the objective of mass production, which I believe has been the history of the industry to date.

The CHAIRMAN. We are very grateful to you, Dr. Pogue, for a very interesting morning and afternoon, I may say. I assume you have no objection if we print in the record the formal statement which you presented this morning?

Dr. POGUE. I would be very happy to file that as part of the record.

The CHAIRMAN. While you had it before you, you did not use it.

Dr. POGUE. I am glad you brought that up, because I wish formally to file that.

The CHAIRMAN. Without objection, it will be printed as part of your statement.²

Dr. POGUE. And may I express appreciation for the courtesy, consideration, and patience of the committee?

The CHAIRMAN. We were all very much benefited, I think, by your statement.

¹ "Exhibit No. 1," included in Hearings, Part I, appendix, p. 185.

² Introduced, *supra*, p. 7113; appears in appendix, p. 7435.

Dr. Gill is the next witness. I believe. Do you solemnly swear that the testimony you are about to give in this proceeding will be the truth, the whole truth, and nothing but the truth, so help you God?

Dr. GILL. I do.

The CHAIRMAN. Will you be good enough to give your full name to the stenographer, Dr. Gill?

Dr. GILL. Would you do me the favor of just addressing me as you do any other ordinary man?

The CHAIRMAN. On the list I have here you have the title of "Doctor" and I was just following the list.

TESTIMONY OF JOHN D. GILL, DIRECTOR, DEPARTMENT OF ECONOMICS, ATLANTIC REFINING CO., PHILADELPHIA, PA.

Mr. GILL. My name is John D. Gill. I am a citizen, resident in the city of Philadelphia; have been in the oil business for 27 years; schooled as a chemical engineer; worked as a chemical engineer in research; as director of a control laboratory; as assistant superintendent of Pittsburgh refinery of the Atlantic Refining Co.; as manager of sales personnel of that company; as director of the department of economics of that company.

The CHAIRMAN. Is that your present position?

Mr. GILL. That is my present position.

The CHAIRMAN. The committee will be very glad to listen to you.

Mr. GILL. In your statement at the opening of this session, Senator O'Mahoney, you referred to a certain new form of presentation before your committee. You mentioned particularly the cooperation of the American Petroleum Institute and a number of men who are working with Mr. Byles, president of that Institute, in the presentation of the story of the petroleum industry. I know that my colleagues in that particular group, of whom I happen to be one, have taken great pains to regale you with detailed descriptions of the operations, the processes and procedures of the industry.

I understand it to be my job to sum up in a numerical way their findings and their work. In other words, to present to you in the form of a series of very simple charts the net results of the operations of the petroleum industry, taking into consideration the effect of all their technological achievements, all the good and all the bad. With your permission I would like to proceed with that presentation.

The CHAIRMAN. That is quite satisfactory, Mr. Gill.

DOMESTIC CONSUMPTION OF PETROLEUM PRODUCTS FOR PRECEDING 12 YEARS

Mr. GILL. Last year the petroleum industry provided the American public with 1,112,000,000 barrels of petroleum products for which it received at wholesale \$1,963,000,000. At the beginning of what has been called the present proration era, specifically in 1929, the industry provided the American public with 905,000,000 barrels of petroleum products and received for them at wholesale \$244,000,000, less than it received in the earlier year for a much smaller quantity. If the experience of 1938 be compared with that of 1926, we notice that in the more distant year there were delivered to the public only 756,000,000 barrels of oil, which brought the industry at its refinery gates \$2,343,000,000.

That is, last year the American industry supplied the American public with products to the extent of 356,000,000 barrels more than in 1926 and received for those products \$380,000,000 less than it received for the smaller quantity in 1926. Now, there might be some objection to these statements on the ground—these comparisons—that last year was a poor business year. Prices generally were depressed and therefore it is not a thoroughly sound comparison; to overcome such difficulty there have been prepared these additional charts that show 1937 in juxtaposition with those earlier years. In 1937 the industry supplied to the public 26 percent more of petroleum products and received only 6 percent more in dollars for the larger quantity. If a similar comparison be made with the earlier year 1926, and from a general economic standpoint, 1937, 1929, and 1926 are quite comparable. In 1937 the industry supplied 51 percent more of products than in 1926 and received $2\frac{1}{2}$ percent less in dollars for that very much larger quantity. And that despite the fact that in the more recent year a barrel of production contained 19 gallons of gasoline, whereas in the earlier year a barrel of production contained somewhat less than 15 gallons of gasoline. The difference between those two factors representing costly conversion of gasoline from heavier and less valuable petroleum products.

If this situation is summed up from 1926 to the present, we find that in the 12 years—

The CHAIRMAN (interposing). Mr. Gill, may I ask you what the source of this information is? From what sources were those statistics gathered?

Mr. GILL. Certainly. The volumetric data are based directly on the issued statements of the Bureau of Mines, located in this city. The values are based directly upon the published statements of the United States Bureau of the Census.

The CHAIRMAN. Thank you. You desire to have these charts formally presented for the record, do you not?

Mr. GILL. If you please.

The CHAIRMAN. It will be so understood.

(The charts and documents referred to were marked "Exhibits Nos. 1141 to 1170," inclusive, and are included in the appendix on pp. 7492 to 7512.)

DECLINE IN PRICE OF PETROLEUM PRODUCTS COMPARED WITH GENERAL PRICE DECLINE OF COMMODITIES

Mr. GILL. In the 12 years since 1926 the industry has supplied the American public with 11,000,000,000 barrels of petroleum products. It received for those products \$21,000,000,000. Had it received for the same volume of products prices for these 11,000,000,000 barrels equal to those prices which prevailed in 1926, it would have received \$35,000,000,000. What I am trying to call to your attention, therefore, is that in the interval there has been a decline in the prices of petroleum products that represented to the American public a saving over 1926 prices equal to \$14,000,000,000 on the consumption which they actually enjoyed.

Now, there might be an additional objection raised at this point by students of this kind of thing on the ground that prices of commodities generally have declined since 1926. I think such an objec-

tion is a sound one, and I would propose to meet it. If we compare the prices of petroleum products at wholesale with the prices of commodities in general at wholesale since 1926, we find that they follow a course as indicated by these graphs. The solid black line represents the movement of prices of commodities in general.

The CHAIRMAN. You are now referring to chart No. 6?

Mr. GILL. Chart No. 6.¹

The CHAIRMAN. I make that interpolation for the benefit of the record. The reader wouldn't know to what you were pointing.

Mr. GILL. Thank you. And, to save time, I shall probably skip over one or two charts. The dash line on this ("Exhibit No. 1146") represents the prices of petroleum products at wholesale.

The CHAIRMAN. Now, these figures are taken from the index of the Bureau of Labor, do I understand?

Mr. GILL. The data from which the heavy black line is drawn were taken directly from the data of the United States Bureau of Labor Statistics. The dash line data were taken from the data of the United States Bureau of the Census, in those years for which the census published data and from calculations for the other years, the even years of the series in which the calculated results tie in directly every second year with the data of the Bureau of the Census. These lines mean essentially that between 1929 and 1938 commodities in general declined in price 17½ percent, whereas petroleum products declined 27.1 percent.

If the comparisons (referring to "Exhibit No. 1147")² are to be made on the basis of 1926, which is the base adopted by Federal statistic bureaus some years ago, the shape of the curves are similar and the over-all result is that commodities in general declined at wholesale 21.4 percent, whereas petroleum products declined 42.3 percent.

The CHAIRMAN. And that decline is between what periods?

Mr. GILL. 1926 and 1938.

Representative WILLIAMS. Isn't it true that lower line declined almost altogether during the year 1926, and from that time they are fairly parallel, aren't they?

Mr. GILL. Much of the decline was just subsequent to 1926.

Representative WILLIAMS. From that time on they are fairly parallel.

Mr. GILL. Well, I suppose it might be said that those lines move together to a degree.

The CHAIRMAN. In other words, the percentage of decline from 1927 to 1938 is practically the same in both lines.

Mr. GILL. It isn't quite the same, Mr. Chairman and Mr. Congressman, as indicated on the previous chart, if we may have that for a moment ("Exhibit No. 1146"). We saw on the chart on which 1929 is taken as a base, and between that year and 1938, that whereas commodities in general declined 17.5 percent, petroleum products declined 27.1 percent. This is the chart to which I referred ("Exhibit No. 1146"). This chart is based 3 years later than the one we were looking at a moment ago, and it shows that over this period, which has now eliminated that decline to which Mr. Williams re-

¹ "Exhibit No. 1146", appendix, p. 7494.

² Appendix, p. 7495.

ferred a moment ago, just after 1926—that the decline between 1929 and 1938 was 17.5 percent in the case of commodities in general and 27.1 percent in the case of petroleum products.

Mr. O'CONNELL. May I ask a question on that point? In this chart, too, practically all of the decline appears in the year 1930 to 1931; isn't that correct?

Mr. GILL. That is I think a reasonable statement, that a large part of the decline appeared in that period.

Mr. O'CONNELL. Do you know whether there was any particular reason for that decline taking place at that particular time, any peculiar reason?

Mr. GILL. Well, you notice that in the first place there was a very sharp decline in the prices of commodities in general that same year.

Mr. O'CONNELL. I understand, but the decline in the petroleum prices was even sharper. I wondered if you knew the explanation of that.

Mr. GILL. There were things happening in the petroleum industry in that time. The East Texas pool had been discovered in October of the previous year.

Mr. O'CONNELL. The East Texas pool was opened up at that time; is that correct?

Mr. GILL. A few months before the beginning of that year.

Mr. O'CONNELL. And that largely explains the rapid decline?

Mr. GILL. I think that plus the fact that the whole economy was in a downward movement at that time.

Mr. O'CONNELL. But the more precipitous drop in petroleum prices than the general index prices would be explained largely by new discoveries of oil rather than anything else.

Mr. GILL. I think that helped very greatly in explaining that particular decline.

The CHAIRMAN. In other words, it would appear from a comparison of the two lines that the decline of commodity prices from the beginning of the year 1930 to the end of the year 1932 was not as great as the decline of petroleum products from the beginning of the year 1930 to the beginning of the year 1931. In one year the decline of petroleum prices was greater than the decline in 2 years of the commodity prices generally.

Mr. GILL. That is a reasonable statement for this particular portion of the chart.

The CHAIRMAN. It is not only a reasonable statement; it is an accurate statement; isn't it, Mr. Gill?

Mr. GILL. I think so; yes. A reasonable statement ought to be an accurate statement.

The CHAIRMAN. That is right.

Now, I observe with a good deal of interest that beginning in 1933 the prices of petroleum products, as well as the prices of commodities in general, did steadily rise until the end of 1937, when both fell off practically in the same proportion.

Mr. GILL. Yes; I think that is fair.

The CHAIRMAN. Now, reverting to "Exhibit No. 1147,"¹ can you tell us what explains that precipitant drop in the year 1926?

Mr. GILL. That is between the year 1926 and 1927, that is from 1926 to 1927. In the year 1926—let me go back a little; in the year

¹ Appendix, p. 7495.

1925 there had appeared on the oil industry's horizon a shortage of crude petroleum. It led to very intensive prospecting and developmental activity in the year 1925 and the year 1926. The effort culminated in the discovery of the great Seminole pool of Oklahoma in the latter year. That discovery was in terms of ordinary economics, overwhelming. It brought about a depression in the prices of raw material from an average of \$1.88 in 1926 to \$1.30 in 1927. That downward movement in the posted price of raw material was followed by a corresponding movement in the downward price of petroleum products. That is the movement, Senator O'Mahoney, to which you refer.

Mr. O'CONNELL. May I ask a question? Would it be fair to say, then, that the substantial decrease in the total price, or in the average price of petroleum products from 1926 to 1938 is explainable by the greatly increased supply of crude oil?

Mr. GILL. I think, Mr. O'Connell, that was an important factor, but by no means the sole factor. The technologic improvements which will be discussed in considerable detail by those who are to follow me I think will make that clear as these meetings proceed.

Mr. O'CONNELL. I see. For our purposes I guess it is enough to realize that the precipitous drops were in major part caused by substantial expansions in the supply of the commodity.

Mr. GILL. I say "an important factor." But, if you will notice from "Exhibit No. 1147"¹ in which 1926 is taken as a basis, there is still a considerable movement from 1927 to 1938.

The CHAIRMAN. Yes; but you have already explained that the East Texas pool was the reason for the drop to the end of 1931, and as I pointed out from an examination of "Exhibit No. 1146,"² the price of petroleum products after the effect of the East Texas pool had exhausted itself, has been upward until 1937 when it dropped down again. In other words, from 1931, after the effects of Seminole and East Texas pool was the reason for the drop to the end of 1931, and practically a parallel line with the price of other commodities.

Mr. GILL. Yes, sir. I think it might be said that these curves indicate clearly that the petroleum industry has endeavored to pass on to its public the full benefit of the fortuitous discoveries of raw material.

The CHAIRMAN. Does that statement imply that the industry could have declined to pass that on, had it wanted to?

Mr. GILL. I don't believe I got that question clearly.

The CHAIRMAN. I say, does your statement imply that the petroleum industry could have refrained from passing on the reduction if it wanted to?

Mr. GILL. I don't believe, Senator O'Mahoney, that it either wanted to or that it could have done so. I believe that the competitive conditions within the industry would have prevented the retention of those benefits to itself.

This is a similar chart, "Exhibit No. 1148,"³ letting 1923 equal 100, similar to the two preceding ones, presented solely for the purpose of overcoming the objection before referred to that in a few years after the post-war boom of the 1920's prices in general had declined and therefore it was to be expected that the prices of petroleum products also should have declined.

¹ Appendix, p. 7495.

² Appendix, p. 7494.

³ Appendix, p. 7495.

These lines for commodities in general—the two upper lines—and petroleum products show a relative movement over this still longer period, with a net effect that between 1923 and 1938 the prices of petroleum products declined relative to the prices of other commodities 19.7 percent.

This is a chart (No. 9) ¹ that I think we can desist from discussing. It is superfluous.

The CHAIRMAN. Then chart No. 9 is omitted from the record.

Mr. GILL. That is right.

PRODUCTION OF PETROLEUM PRODUCTS

Mr. GILL. We have been talking for a few minutes about the petroleum industry's contribution to American welfare in terms of volume of products and declining prices. I should like to present in a few moments' time on these few charts the record, volumetrically, indicating the growth of the service which the petroleum industry has rendered to its American public.

This is chart 10, United States crude-oil production.² In 1923 the industry produced in this country 732,000,000 barrels of crude oil. In 1929 it produced 1,007,000,000 barrels of crude. In 1938, 1,213,000,000 barrels, as shown by chart No. 10.

In 1923 the industry supplied for domestic consumption 634,000,000 barrels of petroleum products (chart 11),³ in 1929 it supplied 905,000,000 barrels of petroleum products, and in 1938 1,112,000,000 barrels of petroleum products.

In the first year of this 16-year period, the industry produced 181,000,000 barrels of gasoline, chart No. 12, United States production of motor fuel,⁴ in 1929 it produced 439,000,000 barrels of gasoline, and last year 567,000,000 barrels of gasoline, as shown by chart No. 12.

The CHAIRMAN. When you use the term "motor fuel," then you mean gasoline?

Mr. GILL. No, sir; not exactly. Motor fuel includes all gasoline, plus what is known in the trade as natural gasoline, not blended at refineries, plus benzol which has been blended with gasoline.

The CHAIRMAN. The reason I asked the question was that the chart was labeled "Motor fuel"⁵ but you referred in each instance to the number of barrels of gasoline and I wondered if you meant to imply that fuel oil, for example, was not included.

Mr. GILL. That was my mistake, Mr. Chairman. For example, there is a difference on the last chart between 567,000,000 barrels of motor fuel and 555,000,000 barrels of gasoline. The difference is not great but I would make the technical distinction.

In 1923 (chart 13, United States consumption of motor fuel)⁶ the industry supplied to its American public 175,000,000 barrels of motor fuel, in 1929, 383,000,000 barrels of motor fuel, and last year, 522,000,000 barrels of motor fuel. I would call to your attention particularly the striking advance in the supply of motor fuel to the American public, representing in large measure an improving technique in the production of gasoline from heavy components of crude oil.

¹ Not introduced for the record.

² "Exhibit No. 1149," appendix, p. 7496.

³ "Exhibit No. 1150," appendix, p. 7496.

⁴ "Exhibit No. 1151," appendix, p. 7497.

⁵ "Exhibit No. 1152," appendix, p. 7497.

PETROLEUM INDUSTRY'S WELFARE CLOSELY ALLIED WITH GENERAL ECONOMY

MR. GILL. One of the aspects of this short summary of the American Petroleum Institute group which devolves upon me, as I understand it, is presenting the petroleum industry situation against the background of the general economy. That is, after all, the welfare of the petroleum industry and of the petroleum industry's customers is bound up in the welfare of the entire economy. I call that fact to your attention particularly in introducing Chart 14,¹ which shows over the period from 1923 to 1938 the movement in the crude-oil run to stills within the United States, and the movement of the Federal Reserve Board's index of manufacturing products. The latter index, as well perhaps as anything can do, portrays the movement of manufacturing activity of the production of things which people use directly or indirectly within the United States, and perhaps as well as any other single figure can, at least it appears that a reasonable and conservative representation of the activity of the petroleum industry is the factor, crude run to stills, which represents in one figure essentially the primary result of production, of transportation and of manufacture within the petroleum industry.

I would like to call your attention to the facts that, first, the index of manufacturing production moved in a generally sidewise direction over this entire 16-year period, whereas the movement of crude run to stills has been on the whole, and excepting during the depression period, generally upwards. The result of that all is that between 1923, which was a good industrial year, and 1937 which was a good industrial year, the index of manufacturing rose from 101 in the earlier year to 109 in the latter year, an increase of approximately 7.9 percent, whereas between those two periods crude run to stills rose from 591,000,000 barrels to 1,183,000,000 barrels, or an increase of 104 percent.

Chart 15, indexes of oil industry net investment and United States crude run to stills.² Before leaving the question of prices, I would like to refer to a comment that is sometimes offered, that the decline in petroleum product prices was solely the result of the enormous increases in demand for petroleum products. To the extent that the industry operates as a mass-production industry, and it does in certain of its aspects and probably does not in certain others, I think that comment is entirely valid.

I am offering the commentary that the decline in product prices, which was abetted by that factor of growth of demand, was also largely implemented by the technologic improvements of the industry which in the first instance reduced costs, reduced prices to be paid by the consumer, enlarged his demand, and so enlarged the industry's ability to make further improvements and further reductions in cost and price.

It is also said at times that this very large growth of demand for petroleum products, probably larger than that of any big industry except, possibly, the electric light and power industry, has been accompanied by unjustifiable expansion of capital employed in the industry and by extraordinary and almost extortionate returns on

¹ "Exhibit No. 1153," appendix, p. 7498.

² "Exhibit No. 1154," appendix, p. 7499.

that capital. I should like to present as nearly as possible some facts that deal with both of those matters. There are no figures, I believe, authoritative, accurate, reasonable, that portray the total investment of the petroleum industry. The subject must be approached by the method of sampling. The samples should be as representative as possible and certainly as large as possible. The sample that is presented on chart 15 shows the net investments of the industry as that net investment is represented by the net worth and long-term obligations of 24 oil companies whose histories could be traced back in detail from the present to 1923.

The data show that between 1923 and 1929 the net investment as thus expressed rose just a little less than 55 percent and then in common with business investment in general in the United States, declined in the subsequent years in the depression as shown by this graph, recovering subsequent to 1935 and stands at the end of 1938 at 40.7 percent above the level at which it stood in 1923. Those facts are significant, particularly in view of the size of the sample, which represents a group of companies standing for upwards of 80 percent of the total crude-oil run to stills in the United States. But data of that sort alone convey very little meaning and have comparatively little significance. The significance of the data is greatly increased when it is understood what has resulted from that investment, and still further increased when the investment has been compared with investments in other lines of activity.

"Exhibit No. 1154"¹ not only shows the trend of investment in the industry over this period as represented by this group of 24 companies, but it shows also the simplest and perhaps the most reliable measure of the over-all activity of the industry as represented by crude run to stills. There is, then, a movement from 1923 to '29, an investment of 55 percent, a movement in the activity of the industry of 70 percent, and over the entire period a rise in investment a little less than 41 percent, and a rise in the activity of the industry of a little more than 100 percent.

The CHAIRMAN. Before you move the chart, would it be proper to draw the conclusion from this chart that these particular companies—how many of them are there, 24?

Mr. GILL. Twenty-four; yes, sir.

The CHAIRMAN. Are today presenting a much smaller opportunity for new investment than was formerly the case, although the amount of business which they do has apparently greatly increased?

Mr. GILL. I cannot answer that question, Senator O'Mahoney, perhaps in a way in which others might be able to answer it or that you would like it answered.

The CHAIRMAN. I have no choice as to the answer, Mr. Gill. I just want the facts.

Mr. GILL. Your question deals with something that is just a little beyond us. I can't therefore, answer the question regarding something that is off a little beyond. I can say this.

The CHAIRMAN. You have a line which shows net investment. I assume that that must take into consideration the amount of new capital which has been invested in these 24 companies.

Mr. GILL. Yes, sir.

¹ Appendix, p. 7499.

The CHAIRMAN. And since the net investment declines, as indicated by this line, I am wondering whether that means a decline also of the amount of new capital; in other words, whether you are here demonstrating to the committee the problem of the unemployment of capital, which is one of the two factors of unemployment that this committee is studying.

Mr. GILL. I think I can get at the answer to your question this way, and say that the petroleum industry in the United States is making very good use of its capital today, and is asking, or has the expectation of, a smaller return for what it does than it had at the beginning of the period.

The CHAIRMAN. Yes; I think that might be true, but testimony which was presented to this committee before the adjournment of Congress tended to show that many of the larger companies are becoming more and more self-sufficient, as it were, dependent upon the savings of the people for expansion and relying more and more upon their own earnings, depreciation, and the like.¹ So it is a very significant thing if the chart which you now present to us indicates that in these 24 instances that also is the case. I wonder if you would be good enough to give us the names of these 24 companies.

Mr. GILL. Yes, sir; I will give you a list of them, if that would be satisfactory.

The CHAIRMAN. I think it would be very helpful to have it in the record.

Mr. GILL. That will be done directly.

(The list referred to was marked "Exhibit No. 1155" and is included in the appendix on p. 7500.)

Mr. GILL. I should be afraid of digressing much too far to get to this very big question that you have raised. I think in the first instance there is perhaps some confusion between the unemployment of labor, on the one hand, and the unemployment of capital, on the other. I think there is also a great confusion about unemployment in general. I can illustrate that without digressing very far in this way. We have today possibly in the country nine to ten million unemployed, according to best estimates available. We don't stop to think that in terms of actual labor exercised by human beings there is unemployment in this country today compared to what might be if the conditions of 1870 prevailed today, equal to the number of persons who are employed, about 44,000,000, multiplied by the difference between the present workday or workweek of approximately 40 hours and the workweek of about 1870, or a little later, when I was a small lad, when men worked from 60 to 72 hours. In other words, there is a great volume of unemployment there represented by the shortening of the workweek which is not thought of because it still provides 44,000,000 persons with places on pay rolls, but we think only of the concentrated unemployment.

The CHAIRMAN. Of course, if all were employed, particularly those employed in hard labor, were to work as long hours today as they worked in 1870, then the unemployment problem in terms of individuals would be vastly greater than it is today, wouldn't it?

Mr. GILL. It might be. That would depend a great deal upon other circumstances—the mechanization of industry, for example—but the

¹ Testimony on "Savings and Investment" appears in Hearings, Part 9

point that I am trying to make in answer to your question, or, rather, the approach to the answer to your question, is that our attention is focused not on employment, but, rather, upon a concentrated form of unemployment, and if that unemployment could be dissipated by spreading all the employment over 54,000,000 persons instead of concentrating the employment in 44,000,000, and concentrating the unemployment in another nine or ten million, the situation to which you referred would not exist. The problem is a very big one. I repeat I might have to digress very far from this subject, and I am not sure that I am wholly competent to discuss it.

Do you wish me to go on?

The CHAIRMAN. That is quite all right. You may proceed.

Mr. GILL. I have suggested that the affairs of a single industry could not be understood except as they were presented against a background of industry in general. I think that is absolutely sound, whether you call it economics or ordinary business or plain common sense. These movements to which we have to adjust ourselves, or which represent adjustments, affect all industry and therefore the appraisal of a single one can only be made adequately and fairly and reasonably when there is some attempt at correlation between its affairs and the affairs of others.

This is a very difficult thing to do in the present state of economic statistics. We do not have good and accurate measures of all of the factors that we should like to have, and again resort must be made to samples, and with your permission I will proceed with such samples.

INVESTMENT AND INCOME OF 24 OIL COMPANIES

Mr. GILL. The investment of the 24 oil companies is shown on chart 16 ("Exhibit No. 1156")¹ in juxtaposition with the investment of 400 industrial companies as compiled by the Standard Statistics Co. of New York. We have in the 24 companies a growth from 1927, the earliest year for which this set of figures is available, from six-billion-two-hundred-odd million dollars to \$6,855,000,000, or a net change in the net worth and long-term obligations of 9.7 percent for the oil group, representative here of the oil industry in the United States. The upper line showing figures for 400 industrials carries the net worth and long-term obligations from \$24,566,000,000 in 1927 to \$25,745,000,000 in 1938, a net increase over that period of 4.8 percent.

You will observe that there is not a vast difference in the absolute rate of growth between the two groups. But again, as in earlier comparisons, that one lacks significance that it should have because it does not relate the investment of those groups with their physical performance. I should like to make such a comparison on the next chart, No. 17 ("Exhibit No. 1157").²

We have, in the case of the oil companies a net increase in investment of 9.7 percent; we have an increase in their performance as measured by crude run to stills of somewhat over 40 percent. In the case of the 400 industrials, which must act here as our background, that is the nearest big group—and incidentally that represents about fourteen-twentieths of all manufacturing corporations within the

¹ Appendix, p. 7501.

² Appendix, p. 7502.

United States; that is, it is a very large sum—we have here a net increase in the investment of that group of 4.8 percent and we actually had a decline of nearly 21 percent in performance. It happens, however, that that was a depression or recession year and I should prefer to go back to 1937 and call attention to the fact that in 1937 the output of the industries of the country as represented by the Federal Reserve Board's index of manufacturing production, was 2.8 higher than it had been in 1927.

The CHAIRMAN. What were these 400 companies?

Mr. GILL. These 400 companies are a group, including that many separate corporate entities, compiled currently by the Standard Statistics Co. of New York.

The CHAIRMAN. In other words, that list was not compiled for this particular comparison.

Mr. GILL. No, sir, it was not. I have not a list of that group available for presentation because it is available to anyone who desires to get it.

I will pass over this one quickly because it is a composite. Chart No. 17-A ("Exhibit No. 1158")¹ brings together the two sections of

Chart No. 17 ("Exhibit No. 1157").² It shows the investment of the 400 industrials, the production of all manufacturing as represented by the Federal Reserve Board's index of manufacturing, the investment of oil companies and the physical performance of the oil companies as represented by crude run to stills.

What has been presented I think substantially demonstrates the fallacy of the allegation that has been made from time to time, perhaps loosely, that over recent years the petroleum industry has been profligate in its use of capital. Even though it might have been said that in 1923 the industry had too much capital invested, there is certainly evidence here that in the meanwhile it has been making efforts to employ capital funds with the highest possible degree of efficiency. But I would like to say further parenthetically that on this question of investment no one knows what the investment in the petroleum industry ought to be. There is no standard, there are no absolute values; we are in a competitive industry, and competition to a large degree controls the investment. If it has been satisfactorily demonstrated that there have been no extraordinary advances in the employment of capital, I should like to proceed with that other section of the allegation to which I referred earlier following the description of the growth of service of the industry, namely that the industry has drawn extortionately from its public for its profits.

Chart No. 18 ("Exhibit No. 1159")³ would tend to disabuse the mind of anyone who had such an idea and would seriously study this chart. It contains three graphs, the dash line representing the rate of return on net worth of a very large group of petroleum companies. The group is not thoroughly consistent throughout this period. It contains as many as 217 companies in certain parts of the period. This curve, however, if I may draw upon your statement of a moment ago, was not made for this particular presentation. It was the best job that could be done for the largest groups of companies available.

¹ Appendix, p. 7503.

² Appendix, p. 7502.

³ Appendix, p. 7504.

This dot-and-dash line represents the rates of return on net worth for all kinds of manufacturing companies. And the solid line represents the rates of return on net worth for all kinds of industry, including manufacturing, other industrial, railroads, et cetera, as published by the National City Bank of New York.

That line contains in certain parts of the series more than 2,000 units. They are the most comprehensive lines portraying the rate of return on net worth known to me or to my associates.

I should like just to call your attention to these facts drawn from this chart. Of the first, that in general the average rate of return for the petroleum group lies below the rates of return for either of the other two groups; parenthetically, that the movement of the petroleum group seasonally is greater than that of the other two groups, but you can readily understand how that might come about, first that the petroleum industry has a greater seasonal effect largely due to the consumption of gasoline in the summer as contrasted to the gasoline consumption in the winter; and secondly it would be expected that very large groups might have compensating influences throughout the year. I do not wish to stress that point. In the third place, that at certain times the petroleum industry's rate of return drops abruptly below that of the other two groups, not only in general below that of the other two, but there are times when it is extraordinarily depressed. Mr. O'Connell referred a while ago to 1927, Senator O'Mahoney to 1931, and we have here the reflection of the drop in prices which was extraordinary in both of those years reflected in an extraordinary depression of profits, so much so that the profit in 1927 was only half of what it was in 1926, and in 1931 the profit declined below the zero-line, that is the profit was a negative quantity.

This is alternate chart 18 ("Exhibit No. 1160").¹ It brings us back to the data that we had been dealing with previously, namely, that for 400 industrials, and for 24 oil companies, both of which represent very large segments of their respective categories. It is to be seen from this chart that for the 24 companies, the rate of return was below that of the 400 companies in every year save one, but that in a general way the graphs move together. Chart 18a ("Exhibit No. 1161")² is similar to alternate 18, except that the data are plotted in terms of dollars of profit for the two groups. The scales have been chosen in order to facilitate comparison and they show a great degree of parallelism between the two graphs. These are dollar profits.

The scales are millions of dollars for the 400 group and hundreds of millions of dollars for the oil group. I am calling your attention particularly to the similarity of the movements between these two dollar-profit lines. Now that kind of comparison again lacks the fullest significance because it does not relate the reward to the companies and the service which they perform. Chart 18b ("Exhibit No. 1162")³ does make that relationship; it attempts to show the profit of each of these two groups in terms of the performance: that is the dollar of profit per unit of performance. The dollars of profit need no explanation. The units of performance in the case of the 400 group were the indexes of manufacturing output as compiled and

¹ Appendix, p. 7505.

² Appendix, p. 7506.

³ Appendix, p. 7507.

issued by the Federal Reserve Board of New York, and the barrels of crude oil run to stills as published by the Bureau of Mines for the petroleum industry. This chart, 18b, should show clearly that over virtually all of the period under consideration, which is the period for which data are available, the petroleum industry relatively has performed more service than that measured by the dollars of its reward.

If the profit of the manufacturing industry with respect to its service can be taken as a standard, there is one thing that this chart does not show that I should like to call your attention to, and that is that while the chart brings the profit per unit of output of both groups together in 1929, that actually if one were to use instead of such a base the rate of return on net worth, then the solid line representing the profit per unit of output of the 400 industrial group would stand appreciably above its present position, because in that base year of 1929 the profits of the oil group were a little less than 10 percent on net worth, whereas the profits of the 400 group were in the neighborhood of 13 percent on net worth, or 30 percent higher.

It would appear that the profits of the oil industry as they may be judged from the profits of a very large segment of it, have not been extortionate; on the contrary that they have been rather less than more than comparable groups of the economy, and that the history of the petroleum industry over the period under consideration with respect to profits has been conservative, as has been its investment policy. But there is another and perhaps more fundamental way of making appraisals of economic situations than those which have been presented so far. Up to this point we have been dealing with facts, solely, and not with estimates of any sort.

With your permission, which I ask because I think from this point on the facts and the estimates to be combined present helpful pictures of the economic situation, I would like to present a tool for the appraisal of segments of the economy that might be useful in determining which industries were laggards and which were progressive. I should like first to present the overall picture of the rewards to the American petroleum industry for the service which it has performed, and by overall I mean the total income of what may be defined as the petroleum industry, predicated upon the same combinations of factors as those which are involved in the Department of Commerce's estimates of the national income.

Following, then, such a formula (referring to "Exhibit No. 1163")¹ and bringing into one picture salaries and wages, rents and royalties, interest moneys paid, and intramural income, dividends paid out and business savings in the one lump sum, we have for the petroleum industry, as so defined, a net income in 1937 of \$1,680,000,000, an increase between the 2 years, and both were good industrial years; although this was not such a good year for the oil industry, a difference of \$534,000,000, or about 47 percent. You will recall that during that period there was an appreciable increase in the service performed by the industry.

Mr. O'CONNELL. May I ask a question at that point? Would it be fair to compare that chart with the chart introduced a little earlier indicating that in the same period of time there was no substantial increase in investment?

¹ Appendix, p. 7508.

Mr. GILL. May we have that chart?

Mr. O'CONNELL. I wouldn't want you to go to that much trouble; a chart you introduced indicated that over that same period there was substantially no increase in investment in oil companies. Do you recall that chart?

Mr. GILL. No; there was an increase of 9.7 percent in investment over that period, that is from 1927 to 1938. With 1923 taken as 100, representing these 24 companies, we have a net investment as defined, of just under 141 in 1938.

Mr. O'CONNELL. Those charts are comparable?

Mr. GILL. Those charts are comparable.

Mr. O'CONNELL. I mean they have about the same companies involved?

Mr. GILL. You mean this chart? ¹

Mr. O'CONNELL. Yes.

Mr. GILL. Yes, sir; this graph represents 24 oil companies as of 1938, whose histories could be traced in detail. I emphasize "in detail" because they include throughout companies that had been purchased in the latter years, which were separate entities in the earlier years.

All corrections have been made on this graph for that kind of change.

Mr. O'CONNELL. Thank you.

Mr. GILL. Just by way of momentary review as to the performance of the industry over this period under examination, chart 20 (Exhibit No. 1164)² shows that in 1923, the industry ran and distilled 581,000,000 barrels of crude oil, and in 1937 it ran 1,183,000,000 barrels of oil, having increased its through-put 602,000,000 barrels, or 104 percent. If the production of gasoline were to be used as the standard of performance instead of crude run to stills, and there are some reasons for using the production of gasoline, the outstanding one being that it represents an expensive conversion of a product provided by nature for which there is only a low value, to a much higher value, that comparison would show that in 1923 the industry produced 181,000,000 barrels of gasoline and in 1937, 572,000,000 barrels, an increase of 391,000,000 barrels, or 216 percent.

However, because there are doubts in the minds of those students who have been dealing with this subject, regarding the propriety of using this basis of comparison as the standard of physical performance, crude run has been employed in subsequent charts exclusively. Now, in the preceding chart³ the income of the industry was shown to 1923 as \$1,146,000,000 and in 1937 as \$1,680,000,000, but certain students of the subject might object to that comparison as a measure of the reward; they might be perfectly willing to accept the measures of physical output which have been presented just a moment before on chart 20, but because there had been a decline in prices between '23 and '37 maintain that the one billion and one hundred forty-six and one billion six eighty were not comparable.

For that reason there has been just this momentary digression to make a correction here which will not be necessary to employ hereafter "Exhibit No. 1165")⁴ for the change in price level. According

¹ "Exhibit No. 1156," appendix p. 7501.

² Appendix, p. 7508.

³ "Exhibit No. 1163," appendix, p. 7508.

⁴ Appendix, p. 7509.

to the Federal Reserve Bank of New York's general price level, a most authoritative issue, the change in the general price level between 1923 and 1937 was 1.4 percent. If adjustment is made for that change in price level, we have then to compare not a dollar income but a purchasing power income of \$1,720,000,000 in 1937 compared to \$1,146,000,000 in 1923. Whereas the earlier comparison gave a dollar increase of \$534,000,000, or 47 percent, the \$1,720,000,000 is just about 50 percent above the income of the earlier year. Now in that earlier year, 1923 (chart 22), the national income as measured by an extrapolation of the data of the Department of Commerce of the United States, with the aid of data of the Brookings Institution, and the National Industrial Conference Board showed that the oil industry income as defined was 1.71 percent of the national income.

PETROLEUM INDUSTRY INCOME AND THE NATIONAL INCOME

Mr. GILL. In 1937, as indicated also by chart 22 ("Exhibit No. 1166"),¹ the oil industry's income of \$1,680,000,000 represents 2.41 percent of the national income of that year of \$69,775,000,000. And now since the price movements are applicable to both series, there is no occasion to make correction in one. The figures show that the dollar income of the petroleum industry increased just short of 47 percent in that period, while its position increased 41 percent, or from 1.71 to 2.41 percent.

The CHAIRMAN. And the increase of the national income during that same period was only 4.1 percent?

Mr. GILL. Yes, sir; and we will see why that is, Senator O'Mahoney, in just a moment, if you please.

Mr. Cox. Before that chart goes ("Exhibit No. 1166"), may I ask a question? What is that figure "Salary-Wages of 1937"?² What does that mean? Is that the amount paid by the industry in salaries and wages to those persons employed?

Mr. GILL. That is right, Mr. Cox; in the producing branch. Just a supplementary statement in the producing branch in the transportation, in the refining, in the marketing.

Mr. Cox. In all the branches?

Mr. GILL. In all the branches of the industry as an industry.

Mr. Cox. Are you prepared to hazard any opinion or estimate as to how many persons were so employed, that is, how many that figure was divided among?

Mr. GILL. Yes; I can give you that statement. I can't give it to you with the accuracy I should like out of mind, but I can give it to you with a considerable degree of firmness.

Mr. Cox. What figure would you say, what estimate would you make?

Mr. GILL. It is a matter of several hundred thousand.

The CHAIRMAN. What is the estimate today of the number of persons employed in the oil industry?

Mr. Cox. Take '37.

Mr. GILL. Well, the figures are scattered through this memorandum; it would take several minutes to pull them together. I

¹ Appendix, p. 7509.

² A supplemental statement, submitted by Dr. Gill in explanation of his testimony and charts, was introduced into the record on October 10, 1939, marked "Exhibit No. 1226," and is included in the appendix on p. 7676.

have, for example, the figure of wholesale distribution, number of employees 110,074 in one of the years of this series. I can give you all of the figures.

The CHAIRMAN. Suppose you make that calculation at your leisure and transmit it to the committee.

Mr. GILL. I should be very glad to do that, sir.¹

The CHAIRMAN. And make the comparison also, then, with the 1923 figure, the number of persons employed in 1923 in the oil industry as compared with 1937 and the per capita distribution.

Mr. GILL. I shall do that also.

Mr. Cox. Senator, how would it be—I suggest this be off the record. [Discussion.]

Mr. GILL. Is there anything further on this?

Mr. Cox. Would you mind telling us how you made up your estimates on rents and royalties there?

Mr. GILL. To save time I have had that put down on a memorandum which I shall be glad to hand to you, or I will read it if you wish.

Mr. Cox. I would like to get that for the record; we have been interested in that.

The CHAIRMAN. Let it be put in the record, Mr. Gill.

(The memorandum referred to was marked "Exhibit No. 1167" and is included in the appendix on p. 7510.)

Mr. GILL. Now, we have been comparing the manufacturing industry as the best background for the petroleum industry and continue with that comparison with the National Industrial Conference Board's figures on the income of the manufacturing industry in 1923 (chart 23)² which is recorded as \$15,285,000,000, which was 22.8 percent of the national income of that year of \$67,021,000,000. In 1937 the income of all manufactures of the United States, as so estimated by the same authority, was \$16,629,000,000, which was 23.8 percent of the national income of that year as reported by the Department of Commerce, \$69,775,000,000.

The CHAIRMAN. Now, before that is removed, what are these percentages of increase?

Mr. GILL. They show that the dollar income of all manufactures increased 8.8 percent; the national income increased 4.1 percent; that is the figure to which you referred a few minutes ago.

The CHAIRMAN. And then the lower line, "Manufacturers' percent of national," does not include the petroleum industry?

Mr. GILL. Yes, sir; it does to the extent that the petroleum industry is an element in all manufactures.

The CHAIRMAN. That is what I wanted to find out.

Mr. GILL. The petroleum industry tends to enlarge this figure of 23.8.

The CHAIRMAN. That is it, exactly. The story that you are telling us, then, Mr. Gill, is that manufacture as a whole increased its income 8.8 percent, while the national income was increasing only 4.1 percent.

Mr. GILL. Yes.

The CHAIRMAN. But referring to the chart which you have just removed, the petroleum industry increased its income during the same period by what percent?

¹ See footnote 2, preceding page.

² "Exhibit No. 1168," appendix, p. 7511.

Mr. GILL. Forty-seven.

The CHAIRMAN. By 47 percent, so that the petroleum industry was vastly more prosperous than manufacturing as a whole. That is correct, is it not?

Mr. GILL. To answer that would require a definition of what is meant by prosperous.

The CHAIRMAN. Well, I am using it merely to express the facts which you have shown on your chart.

Mr. GILL. Yes, sir; but I don't think that you can put it that way, Senator O'Mahoney.

The CHAIRMAN. All right, I will put it any way that you would like to have it put, merely to indicate the situation with respect to profit.

Mr. GILL. Well, I think I can get at your question very quickly by jumping into another field altogether.

The CHAIRMAN. Let me complete the picture as I see it and then perhaps you can correct me if I don't see it as you desire us to see it. You have demonstrated that the income of the petroleum industry during the period from 1923 to 1937 increased 44 percent.

Mr. GILL. Forty-seven percent.

The CHAIRMAN. Forty-seven percent. That during the same period the income of manufactures, of all manufacturing, increased only 8.8 percent.

Mr. GILL. Yes, sir.

The CHAIRMAN. Less than a fifth of the increase shown by the petroleum industry, but that the national income in this same period increased only 4.1 percent, or less than 10 percent of the increase of income shown by the petroleum industry. Have I correctly described it?

Mr. GILL. Yes, sir; you have correctly described the facts. Now it is your conclusion that I want to follow.

The CHAIRMAN. I am not making any conclusion. I merely want to ask a question. Could you advise this committee what it could recommend to the President and the Congress that would enable the national income to show something like the increase that has been shown by the petroleum industry?

Mr. GILL. I see, Senator O'Mahoney, by the smiles and laughter, that the audience recognizes that would completely overwhelm me, and really it does; but I think the answer to your question is that if all industry would up-and-at-it and produce as much relatively in the years to come as the petroleum industry has in '37 over '23, the national income would go up accordingly.

The CHAIRMAN. Well, of course one interesting conclusion that might be made from this—and I don't want to make it because I haven't seen enough of the facts that are to be demonstrated—is that production, increase of production, increase of performance, by the oil industry, may have been one of the principal factors in its increasing income. In manufacturing there has been a decrease of production or a decrease in performance, and of course there has been a decrease of production and performance in national enterprise as a whole, and that may be the lesson which we should learn from what has been said here this afternoon; but, on the other hand, Dr. Pogue was on the stand for a few hours telling us how production at least per well has been restrained and restricted by the pro rata method,

but that of course I recognize is only a proportion of the total output. You will pardon me for interjecting this comment in your testimony.

Mr. GILL. A hundred years ago the share of the national income of what we today call the public-utility industry—that is what there was of electric, power, and light, and gas at that time—was only one twenty-third of what the income of that group is today; and to go back still further, say, to 1790, at the beginning of the Nation, you think of the agricultural income of the agricultural fraction of the population as representing 85 or 90 percent of the national income. That is, the lines are changing. The agricultural income has been declining for a great many years. The manufacturing income has been increasing for a great many years. The oil industry's income, as a total, has been similarly affected as a result of its greater performance.

Chart 24 ("Exhibit No. 1169")¹ brings some of these pertinent factors together. The oil industry's income in 1923 was 1.71 percent of the national income. The performance was 581 units, so stated here for simplicity, that is 581,000,000 barrels of crude run to stills. I said we would not use production of gasoline because it was not as conservative as run to stills, but rather would stick to the crude run to stills as the more conservative figure. We have, then, that the industry's performance for 1 percent of the national income is represented by 340 units of output. In 1937 when it enjoyed 2.41 percent of the national income and performed 1,183 units of service; it performed 491 units of service for each percent of the national income. The manufacturing industry in 1923 received 22.8 percent of the national income and it performed 101 units of service as measured by the Federal Reserve Board's index, or it performed 4.43 units of service for each percent of the national income. In 1937, when the manufacturing industry received 23.8 percent of the national income, it performed 109 units of physical service, or it performed 4.58 units of service for each percent of the national income. That is, the oil industry's income as a fraction of the national income increased by 41 percent—the dollar figure, you recall, was 47 percent. The oil industry's performance increased 103.5 percent. I have been calling that 104 percent. The unit performance per share of the national income increased 44 percent, whereas the manufacturing industry's percent of the national income increased 4.4 percent. That compares to 8.8 percent on the dollar basis. Its performance increased from 101 to 109, or 7.9 percent, and its performance per unit of national-income share rose 3.4 percent. That is, the oil industry's performance per unit of national income increased 44 percent, all manufacturing increased 3.4 percent.

Chart 25 ("Exhibit No. 1170")² attempts to equate the oil industry with its background of all manufacturing to see how these great industrial enterprises or groups of enterprises might have moved had they moved together with respect to the reward standing out against the service performed. In 1937 the oil industry received \$1,680,000,000. It performed in the earlier year of the period 1923, 340 units of service for each 1 percent of the national income. Had it increased its performance per share of the national income in the same ratio

¹ Appendix, p. 7511.

² Appendix, p. 7512.

as the manufacturing industry as a whole did, it would have increased its performance by 3.4 percent, or from 340 units to 352 units. Actually, in 1937 it did perform 1,183 units of service, for which it received 2.41 percent of the national income. If, to match the manufacturing industry as a whole, it had performed 352 units of service for each 1 percent share of the national income, it would have received 3.36 percent of the national income. The national income in 1937 was \$69,775,000,000. It would have received 3.36 percent of \$69,775,000,000, or \$2,344,000,000, but actually it received only \$1,680,000,000. Therefore, the technologic advances, the conservation in the use of capital, the fortuitous discoveries to which reference has been made, all of those things have been combined to permit the industry to pass on to its public essentially for that year the equivalent in values of \$664,000,000.

The CHAIRMAN. Did it occur to you, Mr. Gill, in preparing these charts, that an interesting comparison might have been developed had you prepared a showing for the automobile industry comparable to that which you have prepared for the petroleum industry? I say that because obviously the increased use of automobiles has been one of the reasons for the increased use of petroleum and petroleum products; and if my experience is not unusual, I think it can be said that wherever one goes one finds people saying, particularly persons who are engaged in other industries than the motor industry or the petroleum industry, that there is a great disposition among people to buy a car and buy gasoline when they won't buy anything else. It is frequently alleged that people go without proper housing in order to have a car and travel; that they sometimes even go without proper food in order to do that. A comparison of the output in the motor industry, a comparison for these same years, 1923-37, a comparison of the prices charged by the motor industry for automobiles, otherwise for the units produced, would make a very interesting comparison because the two go so closely together in our life.

Mr. GILL. Yes, sir; I believe it would. I must plead, Senator O'Mahoney, that I don't have the resources of your committee. This was a long job.

The CHAIRMAN. Yes; I realize that; and I feel that it is quite obvious you devoted a great deal of time to the preparation of this material, and the committee is grateful to you for the work and the labor and intelligence that have been devoted to preparing it.

Mr. GILL. On your second point, I don't believe that I should be prepared to tell people what they ought to buy. I think we ought to leave that up to them.

The CHAIRMAN. I agree with you on that. May I say that the story as you have presented it, very interestingly, conveys to me the feeling that one of the objectives toward which we should all work is to increase the capacity of the masses of the people to purchase the products of industry. You have demonstrated that in this industry at least increased production has been accompanied by increased profits, and that increase of production and increase of profit has been due to the fact that people for one reason or another have purchased the products of this particular industry. Now if we could enable them to purchase the products of all industry, not on a piecemeal basis, not on a miserable scale of W. P. A., for example, then

perhaps the manufacturing profit would be more nearly equal to that of the profit of the petroleum industry alone.

MR. GILL. I should like to see that; but may I say, Senator O'Mahoney, that I think the automobile industry and the petroleum industry, separate industries it is true, but cooperating in such a way as would be practical, have brought untold benefits to the whole American public.

THE CHAIRMAN. There can be no doubt about that.

MR. GILL. For example, look what the automobile, the bus, the truck, have done in our rural districts to consolidate schools, to give graded schools the place of the famous little red schoolhouse, with however its inefficiencies, and how communities are being served by transportation formerly lacking, and how resources that formerly were unavailable have been reached by means of this mobile form of transportation, and so on. I am saying things that perhaps you know much better than I.

THE CHAIRMAN. Not at all; that is quite all right.

MR. GILL. Senator O'Mahoney, this is the last of the charts which we have prepared in this series.

THE CHAIRMAN. Are there any questions?

MR. GILL. We are very much indebted to you for a very interesting presentation.

MR. GILL. You have been very patient with me.

(The witness, Mr. Gill, was excused.)

THE CHAIRMAN. I have here a response from the American Brass Co. to a question that was propounded by Mr. Arnold during the hearings on the beryllium industry. It is herewith admitted for inclusion in the record of those hearings.

(The letter referred to was marked "Exhibit No. 1171" and is included in Hearings, Part 5, appendix, p. 2304.)

THE CHAIRMAN. Tomorrow morning the committee will assemble at 10:30 o'clock and Mr. J. Howard Pew, president of the Sun Oil Co., will be the first witness. It may be that thereafter we shall be able to hear from Marion M. Travis and Mr. H. B. Fell. I am told that Dr. Lubin may be heard tomorrow.

The committee will now stand in recess until tomorrow morning at 10:30.

(Whereupon, at 5:45 p. m., a recess was taken until Tuesday, September 26, 1939, at 10:30 a. m.)

INVESTIGATION OF CONCENTRATION OF ECONOMIC POWER

TUESDAY, SEPTEMBER 26, 1939

UNITED STATES SENATE,
TEMPORARY NATIONAL ECONOMIC COMMITTEE.
Washington, D. C.

The committee met at 10:40 a. m., pursuant to adjournment on Monday, September 25, 1939, in the Caucus Room, Senate Office Building. Representative B. Carroll Reece presiding.

Present: Representatives Reece (acting chairman) and Williams; Messrs. Berge; O'Connell; Henderson; Brackett; Lubin.

Present also: Willard Thorp, Clarence Avildsen, and Robert McConnell, representing Department of Commerce; Willis Ballinger, representing Federal Trade Commission; Hugh B. Cox, special assistant to the Attorney General; W. B. Watson Snyder, special assistant to the Attorney General; Christopher Del Sesto, special assistant to the Attorney General; F. E. Berquist, special assistant to the Attorney General; Roy C. Cook and Leo Finn, Department of Justice.

Acting Chairman REECE. The committee will come to order, please.

The first witness as announced by the chairman at yesterday's session is Mr. J. Howard Pew, president of the Sun Oil Co. Is Mr. Pew present?

Acting Chairman REECE. Do you solemnly swear that the testimony you shall give in this procedure shall be the truth, the whole truth, and nothing but the truth so help you, God?

Mr. PEW. Yes, sir.

Acting Chairman REECE. Before giving your statement the committee would appreciate your giving your name and address for the record, together with a statement of your background and experience, after which you may proceed in presenting your statement as you see fit.

TESTIMONY OF J. HOWARD PEW, PRESIDENT, SUN OIL CO., PHILADELPHIA, PA.

Mr. PEW. Mr. Chairman, I am the president of the Sun Oil Co., which is one of the smaller of the so-called integrated companies. My early experience was in the refining and transportation business of our company which began about 38 years ago. I happen to have been the president of our company now since 1912.

By arrangement between your committee and the American Petroleum Institute, I was assigned the task of presenting to your committee a broad general view of the oil industry.

The detailed consideration of the various activities of the industry was assigned to other witnesses who have also presented their statements to the committee.

To Mr. DeGolyer was assigned production, Mr. Dow to speak and testify on transportation, Dr. Wilson on refining, Mr. Sænsrud on marketing, and Mr. Anderson on employment; with Mr. W. S. Farish, president of the Standard Oil Co. (New Jersey) to conclude the presentation with a general summary.

I should like, Mr. Chairman, first of all, to present a brief statement setting forth those facts which the various witnesses representing the American Petroleum Institute are prepared to substantiate.

VIEWS OF THE AMERICAN PETROLEUM INSTITUTE

MR. PEW. I am here as one of the spokesmen of the American Petroleum Institute, the largest and most inclusive trade association of the petroleum industry. On its behalf I wish to thank the Temporary National Economic Committee for the opportunity to tell our story here. Personally I have realized, from some considerable attention to your proceedings, that you were engaged in a comprehensive and potentially fruitful investigation of the entire structure of our American economy. Carried on in the spirit you have manifested it should enlist the hearty cooperation of business, industry, and enterprise.

The petroleum industry almost throughout its existence has been repeatedly subjected to searching inquiry. The spotlight of legislative and judicial investigation has time and again been flashed into every nook and corner of our activities. There has been much criticism, much loose talk of it as a monopoly. Most of the criticism has been found on analysis to be based on misinformation or prejudice. Largely it has been directed not at our industrial system, but at competitors and competitive practices; much of it is reminiscent of the old feeling against the ancient Standard Oil Trust, which ceased to be a part of our industry almost 30 years ago; so we are appreciative of the assurance given by your committee that yours is to be an unprejudiced and objective inquiry and not one in which isolated instances of certain competitive practices are so set out and magnified as to dwarf the real issue.

We believe the inquiry will be of real service because it should help dispel much of the clouds of mystery and doubt which have long hung over our industry. Commonly this industry has been broken down into four grand divisions—production, transportation, refining, and marketing. Logically it might equally well have been broken down into a hundred divisions because there is no definite line of demarcation as between the various divisions.

I first want to say that as you examine the operations of these activities and their relation one to another you will find certain outstanding facts; that there is a complete absence of monopoly; that natural economic laws are all at work; that no better illustration of our competitive system exists in American industry; that petroleum products are the cheapest commodities of general use; that the aggregate tax paid on the industry's activities and products is the highest in the land; that the industry's average earnings have been and are reasonable; that the wages paid are among the highest and the

working conditions among the best in American industry; that no condition exists which requires further Federal regulation of the industry's activities; that the complaints you will hear will be directed not at monopolistic conditions, but at competitive practices which inhere in any economy where competitors exercise free will in the conduct of their business.

In the field of petroleum production, you will find that within the framework of the law there is free and unhampered opportunity for all. Conservation of a natural resource is the primary aim.

In the realm of transportation, you will find that the industry has developed its own unique and complete system adapted to serve this industry alone, and providing the cheapest transportation in the world.

(The vice chairman assumed the Chair.)

Mr. PEW. You will find that the elements of this transportation system are in fact only plant facilities, that no other forms of transportation can compete, that their integration with the other activities of the industry is essential to low-cost production and distribution, and that rates and methods, already under strict regulation, would be less favorable rather than more favorable under any other scheme of operation.

In the department of refining you will find that all units of the industry exercise complete independence of action in the manufacture and sale of their products.

Marketing operations are far-flung and turbulent. In every phase of this activity there is the keenest competition. This branch of the industry fairly seethes with competitors, both large and small, all striving for a place and a share in the business. Such a widespread activity among so large and varied a number of independent enterprisers inevitably will be marked by a good bit of complaint about competitive practices. This condition, however, is by no means peculiar to the oil industry.

Throughout all these activities of the industry, the free play of economic law will be found imposing its conditions alike on both the efficient and the inefficient operator. But the facts will convince you that complete freedom of opportunity exists for any who wish to enter the business and risk their energy and capital in this competitive struggle. No investigation of an integrated industry like petroleum can be complete unless and until the entire industrial operation and economy (beginning in the case of petroleum with the search for oil and continuing through to the final sale of the refined products) has been thoroughly scrutinized and understood. To this character of inquiry we willingly submit, confident that your conclusions will coincide with the best judgment of those whose lives and fortunes have been devoted to this industry. We are confident that your final judgment will be that no segment of American industry has better served the public or is more deserving of its confidence and good will.

SERVICES OF THE INDUSTRY

Mr. PEW. The birth of the petroleum industry, dating from the first recovery of oil from a drilled well, dates back little more than two generations. Today with over \$8,000,000,000 invested, only agriculture and rail transportation exceed it in investments of capital.

It was a vital factor in the machine age, for it supplied the lubricants without which the machine era would have died a-borning. Kerosene gave the world light and when the internal-combustion engine was produced, gasoline breathed into it the breath of life. Chemists, inventors, technicians have found uses for hundreds of derivatives from this magic stream, all contributing to raise the standard and lower the cost of living. There could be no worse mistake than to attempt dealing with this industry as if it were concerned only with gasoline.

The VICE CHAIRMAN. May I interrupt you to inquire as to your pleasure with regard to interruption? Would you like to make your statement and then have questions asked, or would you prefer to have questions asked as you proceed on points which are not clear? The committee wants some information.

Mr. PEW. I want you to do just as you please, Mr. Sumners.

The VICE CHAIRMAN. Perhaps it would be well, then, for me to ask you a question on the matter of sales. Yesterday a witness testified that in the selling end of the petroleum business, there was considerable loss to the major companies. They made money other places, but as I understood his testimony, they lost there. Now, that is the place at which you said there is the greatest competition. The question naturally arises in the minds of the members of the committee how it comes about that you conduct that branch of your business at a loss, that branch in which the larger number of independent people are seeking to engage, if that be true. It may be this witness was not advised.

Mr. PEW. I think that is a matter that can only be ascertained from the study of the conditions obtaining in each individual corporation. In our company we have found the marketing department of our business to be probably the most profitable, if not the most profitable.

Now, as regards procedure, this statement of mine is a broad general view, as I explained to the committee before you came in, of the industry and its activities and the way it functions. It isn't designed to be a detailed discussion. So I thought, if I might, it might be well for me to present enough of it to get the background. I have treated many of these questions a little further on. As I explained before you came in——

The VICE CHAIRMAN (interposing). You needn't bother with another explanation. Just go right ahead.

Mr. PEW. Over half the barrel of crude is converted into other products: the kerosene and illuminating gas that light our homes, the fuel oil that heats them, bunker oil that runs our ships, lubricants that make it possible to operate the whole world's machinery. From petroleum we get asphalt for our streets and road oil for our rural highways. The doctor prescribes it as an "internal lubricant" for the human organism. The dietician uses it in "reducing" dressing for salads, and the beautician employs it as a constituent of milady's cosmetics. It turns up in your paints, in the coating of your stenographer's carbon sheets, in the ink with which you sign her letters, and in the chewing gum she masticates while you are doing it. Altogether, more than 200 different products come out of that barrel of crude; every year new uses are found for it, new products call for their share in it.

And the industry has met every demand upon it. In war it floated us and our Allies to victory on a sea of oil; in peace, it has paid, through gasoline taxes, for our good roads—greatest public improve-

ment ever created in so brief a time in any country. It has carried the comforts and satisfactions of urban life to the country, and given city dwellers the privilege of easy access to the country. Converting a continent into a neighborhood, it has opened an intimacy of contacts, acquaintance, and knowledge that guarantees against sectional misunderstandings and division.

Finally, petroleum is our most characteristically American industry. It started here, and has continued here. Sixty-two percent of the world's oil industry is here. With every service dependent on it in this day of mechanized war, ours is the only country that is sure of instant supplies for every military emergency—army, fleet, submarines, flying forces, and service of supplies. With two ocean fronts to defend, we have oil on both. In a day of need, we would not exchange that guaranty for reinforcement by a fleet of battle-ships or a half hundred divisions of veterans in khaki.

At a time when the world trembles on the brink of war, it may be worthwhile to recall American petroleum's part in the last war. From the first battle of the Marne, when the taxicabs of Paris hauled a fresh army out to the fighting line in the strategic play that probably turned the tide of battle, to the last sweep of the Allies in 1918, petroleum was of first importance.

To control oil supplies was the object of much of the war's major strategy. As soon as the United States entered the war the Allies made urgent demands for petroleum. Immediately the National Petroleum War Service Committee was formed by leaders of the industry. Through this committee the industry, with very little governmental interference, carried on its war activities. Every requirement was met.

In 1918, 2,600,000 tons of fuel oil were sent to Europe and more than a million tons of petroleum distillates. At the war's end the stores of oil in possession of the Allies were greater than at any previous time. In their final winning drive, 80 percent of oil used was from America.

I may close this phase of my discussion by quoting from an article by Victor Ross on Petroleum in the World War. He said:

It was recognized that the work of the National Petroleum War Service Committee, though unostentatiously performed, was the most efficient and the most fruitful in results for the cause of Democracy of any industrial institution in the War. * * * These results were achieved by the voluntary efforts of thousands of men serving in every phase of the industry—crude production, refining, and transportation.

Under our system of free enterprise the oil industry has established itself, has developed our oil reserves, and created transportation and refining systems adequate to meet any emergency. Under none other could it have been thus builded; under no other can it be perpetuated. The element of monopoly was driven out of it nearly three decades ago; in part by the dissolution of the old Standard Oil Trust; in part by the revolution within the industry when the automobile's demand made gasoline the most important product. Since then the industry's whole character has been made over and its great growth has taken place. How rapid that growth has been I may suggest by recalling that A. C. Bedford, when chairman of the old Standard Oil Co., placed the entire investment in the industry in 1906 at \$750,000,000, of which about half was credited to the Standard Oil group. In

1911, when the old Standard was dissolved, its interests were valued at about \$650,000,000, other refining interests about \$150,000,000, and producing properties at about \$1,250,000,000.

In this connection it should be remembered that the old Standard was predominantly a refining and transporting company, not a producing and retail marketing company. By any present definition it would not have rated as an integrated concern. It was not until after the dissolution of 1911 that the various Standard companies went much into production. Then the New Jersey Standard took over such producing companies as Carter Oil and Humble; Standard of New York took over Magnolia, and so on. At the same time these Standard companies went into retail marketing. They had to do these things in order to compete with the new fully integrated concerns that were starting into the field: Texas, Shell, Gulf, Pure, Sun, and many others. The truth is that integration, instead of being a weapon of monopoly, was the implement with which the new competition armed itself against the old monopoly.

INTEGRATION HELD TO BE WEAPON AGAINST MONOPOLY

Mr. PEW. On this point I cannot be too emphatic. I earnestly hope your committee will fully examine this aspect of the industry's development. If you will do so, I am convinced that your conclusions will agree with mine—that integration, instead of making for monopoly, is our one sure guarantee against monopoly.

The VICE CHAIRMAN. Why is that a cure against monopoly?

Mr. PEW. Because an integrated company, having its production, its pipe-line facilities, transportation, refining, and marketing, never can be controlled by any one group taking the control of one department or one phase or one activity within the industry. The old Standard Oil Trust was not, as I said, engaged in either production or marketing, but it dominated the industry through the control that it had in the transportation and refining branches of the industry.

The VICE CHAIRMAN. How would it have come about; by reason of that control of manufacturing, had they also engaged in retailing? Would that have made them any less a monopoly?

Mr. PEW. I think if they had had control of the retailing they would probably have been able to effect the most complete control of the industry that could be obtained through the domination of any one branch.

The VICE CHAIRMAN. Then how does it come about that integration reduces the probabilities of monopoly?

Mr. PEW. Because it prevents such control of any one activity.

The VICE CHAIRMAN. I don't believe I follow your reasoning. The manufacturer controls the distribution of that which he manufactures, by integration; he controls it. Now if he blocks competition, either in manufacturing or distribution, he is a monopoly, and it doesn't seem to me that to double the possibilities of a monopoly would reduce the probability of a monopoly.

Mr. PEW. If you have a few well-integrated small concerns operating throughout all the divisions and all the activities of the industry—

The VICE CHAIRMAN (interposing). Then they don't have to go through anybody else?

Mr. PEW. Yes; they don't have to go through anybody else.

Mr. BERGE. Mr. Chairman, may I ask a question? You conceive of effective competition in the oil industry, I take it, as being a competition of numerous integrated companies. The competition will be promoted if each company is strong enough to have a source of supply and a marketing and a refining organization; therefore it can compete with other giants because it is strong enough to do so. If your theory of competition is the correct one—and I am not arguing now as to whether it is—what chance has an independent refiner or an independent marketer for effective competition against the great organizations?

Mr. PEW. I think the independent has a great many advantages. I think we use that word "independent" sometimes loosely because in our organization we consider that we are independents, although we are also integrated. I can recall that when we started in the gasoline business some 13 years ago that we had a great deal of advantage over the larger integrated companies, because we could go out and select the choice kinds of crude oil; we could refine those in our refinery; we could ship those products out to the cream of the marketing territory; we went into just those areas, and we did just that thing.

Mr. BERGE. Why can't the large integrated companies do that too?

Mr. PEW. They can't pick and choose; they have to take a whole section. In the mass production they have to have a mass market.

Mr. BERGE. Now if the bulk of American oil is handled by the large integrated companies, what chance has an independent marketer to get a supply on satisfactory terms through the processes of competition, if he himself is a competitor of the marketing branch of the companies from whom he must buy? I take it that the consequent growth of integrated companies and the multiplication of them numerically would mean more and more oil handled by them; and aren't you placing the independent refinery and also the independent marketer in a position, more and more, of dependence upon his larger competitors—and I am speaking of independent in a sense of companies that are organized to do business in respect to one branch of the marketing of oil, refining or marketing—I should say one branch of the total oil business—and who have no affiliations with integrated companies? I don't suppose that is a technical definition of independent company, but I am thinking of it as one of these organizations which only markets oil and is not affiliated with any of the commonly accepted big companies. Aren't they placed at distinct competitive disadvantage?

Mr. PEW. I take it that your question refers first of all to the marketing activities of the industry.

Mr. BERGE. Perhaps there are different considerations in marketing and refining. I know there is a large group known as independent refiners and also a large group known as independent marketers, and the associations of these independent gasoline stations are many of them very small-business men who in fact try to compete with the stations that are owned directly by the integrated companies. I am thinking about their being in the position of having to purchase supply from their competitors, which it seems to me they have to do.

Mr. PEW. Are you thinking of the marketers in the industry or the retailers?

Mr. BERGE. Well, I hadn't in my own mind defined the question that closely. You may answer it as to either or both groups.

Mr. PEW. Well, my view is that there will always be the opportunity for the small operator in this industry. My view is that he will always be able to operate in any one of the branches of the industry, because after all the personal element, management, the ability of the individual, will always obtain a certain amount of business as a result of his efforts. But, in addition to all that, I think there is a point beyond which the large integrated companies cannot go, because the independent operator can always pick and choose the cream of the business, and it is always more profitable for him than it is for the integrated companies who have to take business, by and large, as they get it.

Mr. BERGE. I don't quite follow that. I don't see how you can say that the independent has an advantage in picking the cream of the business when he hasn't the facilities for marketing or retailing that the integrated company has and where he is dependent to a large extent, it seems to me, on that for his source of supply.

Mr. PEW. In the first place, he has the opportunity of buying from all of the large companies. There does exist, of course, the keenest kind of competition as between those larger companies. In the second place, he has the opportunity of buying from the so-called independents.

Mr. HENDERSON. May I ask the witness a question? I gather from what you said, one prong of your answer is that there is always a place for the small independent and that there is a place for high-grade management. I assume you would include in that a certain amount of investment necessary, too, for an individual. He can't just start in the oil business in any one of its branches without a certain amount of investment.

Mr. PEW. Or any other business.

Mr. HENDERSON. But looking at the record that was presented yesterday by Dr. Ise, it seems that the percentage of business which is being done by the integrated companies is on the increase and therefore, as far as taking advantage of the opportunity, the individual of small means, regardless of expert capacity and managerial ability, is finding a smaller and smaller area available to him. Isn't that true?

Mr. PEW. I wouldn't say so. I attempted to explain a moment ago our position a few years ago when we started in the gasoline business. We found that we had a tremendous advantage over the larger companies. We are able to go into the oil fields and choose the cream of the production. When we refined that oil we got our products of a high quality which was what we were looking for, and then we were able to take those products out and sell them in those markets which at the moment were the most advantageous.

Mr. HENDERSON. But you had quite a substantial amount of capital, didn't you, for that undertaking?

Mr. PEW. I would say so, but I think it practically paid its way as we went along. I could get that information. My recollection is that we didn't go out and refinance.

Mr. HENDERSON. Oh, no; but the Sun Ship¹ had resources which aren't available to the ordinary individual in terms of what you think of as competitive enterprise.

Mr. PEW. No; but that wasn't the way we started. We started in a very small way to make this gasoline, and then we selected one section of the country, one city. We advertised our product in that city. It was inexpensive. Finally, after we covered that city we took another city and the business paid its way.

Mr. HENDERSON. Getting back, though, to this impression which I got from the testimony yesterday, which was supported by a considerable amount of fact finding, the area that is available even to a unit such as yours was when you started some years ago, is shrinking, isn't it, or is it your impression that it is a much larger area than it used to be?

Mr. PEW. We have a much larger field in which to operate. I don't recall the number of automobiles that were on the roads in 1926 and '27, but I suspect there has been a very large increase.

Mr. HENDERSON. So that even though 20 companies have 90 percent of stocks of finished gasoline, your idea would be that the 10 percent that is left is equivalent to a larger market for independent competitors than, say, 15 percent 12 years ago?

Mr. PEW. I, first of all, am just wondering why you use the stocks of gasoline as the basis for distribution of the business.

Mr. HENDERSON. It happened that I picked out one of the tables here.² I will let you pick one: Domestic sales of gasoline, 18 companies have 80 percent; gasoline pipe-line mileage, 16 companies have 96 percent; stocks of lubricants, 80 of them have 93 percent; on the production of gasoline, 20 companies have 83.8 percent. I can go on down the line but it is immaterial to the question I am trying to get at, which is whether or not the area in which somebody wanting to go into one or all phases of the petroleum business can operate is shrinking or is larger than it used to be.

Mr. PEW. I think that the larger the percentage of the business that is handled by the so-called major companies—a word which I think has been used in a most unfortunate way—the easier it is for the independents to get into the business.

Mr. HENDERSON. That certainly runs contrary to testimony of independents in various branches in this business and also runs contrary to the idea of free and equal opportunity in business, doesn't it?³

Mr. PEW. No.

Mr. HENDERSON. You mean if the large companies have a tremendously large percentage of the business, that there is a larger opportunity for the individual?

Mr. PEW. I think there is a larger opportunity.

Mr. HENDERSON. Why?

Mr. PEW. Because he can choose the location in which to start his business, if it be a marketing business; he can choose his crude oil if he is interested in refining; the large integrated companies have to take everything that is produced along their pipe lines. Some of the crude suits their purposes, some of it doesn't. The independent,

¹ Mr. Pew is a director of Sun Shipbuilding & Drydock Co., Chester, Pa.

² Referring to table introduced by Dr. Ise, appearing *supra*, p. 7103.

³ For testimony on this subject see *infra*, pp. 7265-7291, 7306-7331, 7333-7387; also Hearings, Parts 15 and 16.

the small man, chooses the crude oil that best suits his particular purpose.

Mr. HENDERSON. He can pick up these fragments that are left and build a successful thing?

Mr. PEW. No; he can go in and and take them away from the other man.

Mr. HENDERSON. That is the point I was getting to, that since you started in the business evidently they have not been taking them away. This process of absorption of a larger and larger part of the market has been going on. The opportunity may be there, but with a tremendous amount of ability, brains, and money, it just hasn't happened.

Mr. PEW. I don't understand that that is exactly the case. Mr. DeGolyer has some detailed figures on that which he proposes to present a little later, in which I think he will show that that trend has been in the opposite direction.

The VICE CHAIRMAN. May I suggest, Mr. Pew, that that is the kind of thing we want, if I may make a suggestion. What has happened? We know, for instance, that gasoline is a very important industry. Just what it is doing I don't know, but everybody going around over the country knows that, and everybody who buys gasoline and every other kind of "lene" knows a heap of that stuff is made out of petroleum. We all know that, not in detail, but the thing that concerns us is what are we going to do about it, about the general situation. That is what we are here for. It is on these points such as you have been discussing that the committee deserves the greatest information.

Mr. PEW. I have gone into a lot of these questions later on in my presentation. I think if you will permit me to give it that it might help in the later discussion.

Mr. BERGE. I don't want to pursue it unduly at this time, but I think it can be disposed of in a moment, but there was one question which was provoked by the figures Mr. Henderson gave. I notice that about 96 percent of the pipe-line business, which I understand to be the crude oil, the movement of the crude oil from the fields to the refineries, is controlled by 16 of the companies. As I understand it, you do favor the maintenance of independent, nonaffiliated competition, I take it; you don't want to see the so-called independent refiners go out of business altogether. If 96 percent of pipe-lines are controlled by 16 companies, certainly it follows, doesn't it, that those companies have an advantage in competition in the refining end of their business over the independent refiners? The independent refiner must be at a disadvantage in meeting the competition of the companies who own their pipe lines. Would you deny that?

Mr. PEW. I think that is a matter that requires a good deal of exploration. I don't believe, first of all, that a general statement, such a broad statement as you have made, can be answered broadly. It seems to me that we have got to take every individual situation and explore it with a view of determining just what the facts are in that particular case.

I have, further on in my paper, dwelt at some length on just that situation.

Mr. BERGE. Perhaps, then, I should defer further inquiry until you reach that part of your paper. I am interested in running that down a little.

Mr. PEW. I have here a list of 117 companies which the American Petroleum Institute classes as completely or partially integrated. They range all the way from the giants to the pygmies of the business. Forty of them are substantially integrated; but not over half of these 40 could possibly be rated as "majors." If anybody suspects that monopoly is likely to be established among these six score of fighting, independent and determined competitors, I should like to have him sit at my elbow during the working hours of a few business days. He would learn what competition really is.

The discovery of integration as a bogieman of the industry is of quite recent years. When I first heard of it I had to ask what it meant, and was a little surprised to be told that my own company was guilty of being integrated. I presume it is; but if you should ask me when it became integrated I should first have to get your very detailed definition of the word, and then call our board of directors together and have our records examined from the beginning. With us, at least integration, like Topsy, "just growed." It was natural, it was inevitable, if there was to be any growth and any progress.

The industry has been developed on the theory of big and expanding production at constantly lower prices. It is our most impressive monument to that unstinted competition that is always looking for better methods, improved processes, inventions, discoveries—that seizes upon every idea looking to lower costs, better products, wider markets—that always seeks to give the consumer better goods at lower prices. This competition has demanded millions every year for laboratory and experimental work. It has demanded constant reorganization and modernization of plants and processes. The establishment that is today's last word in progress, and has cost millions, is likely to be outmoded by next year. Yet this seeming wastefulness is real industrial economy. The fraction of a cent of saving per gallon or the shade of improvement in quality multiplies into wider acceptance, expanding volume, and strengthened position. These are the things which keep us constantly on the keen edge of competition and which make competition a good thing.

The test of an industry's success is that it provides adequate supplies of its products of good quality at fair prices, pays good wages, maintains good working conditions, pays fair prices for the materials and supplies which it has to purchase, earns a sufficient return on capital in order that it may always command additional capital when it is needed for expansion or improvement, and most effectively conserves human and physical resources. By all these tests the petroleum industry has deserved well of the public. It has justified our belief in the American system of free enterprise, unhampered initiative, private ownership, and unrestricted competition.

If the industry is tainted with monopoly, there must be some evidence. If our prices were excessive there would be innumerable complaints. Yet in all the many investigations the thing that has most impressed me is that our customers never allege that we are overcharging them. More commonly they wonder that our products are so cheap. These prices scrape the bottom of the commodity price index. Thus in June 1938 they stood at 56.3 as against 78.3 for "all commodities." And they have in recent years shown the greatest shrinkage in consumer price. In 1920 the country's average service-

station price of gasoline, ex tax, was 29.74 cents; in 1926 it was 20.97 cents; and on October 1, 1938, it was 13.76 cents—and the lower price paid for a much higher quality. The index shows petroleum products today are the cheapest commodities of general use.

The estimated net book value of all the corporations comprising the oil industry is probably somewhat over \$8,000,000,000. An estimate of earnings from 1921 to 1936 indicates, for the industry as a whole, a deficit in 1 year and profits in 15. The highest yearly return on net worth was approximately 10 percent; average yearly earnings were just under 6 percent. It would be a mighty inefficient monopoly that could do no better than that.

But even if prices are low and profits are modest, is there some phase subject to criticism? Is it our attitude toward labor? A favorite diversion of monopoly is supposed to be grinding the face of labor. So let us inquire how this industry has been treating its workers.

Department of Labor statistics show that in 1938 pay rolls of oil refining exceeded 1929 by about \$16,000,000. The average hourly refinery pay in 1938 was 98 cents, which was more than 40 percent above 1929, and the highest rate paid in any manufacturing industry. Weekly working hours averaged 49 in 1929 and 36 in 1938; but the average weekly wage in 1938—just under \$35—was higher than in 1929 and over \$12 above the average for all industrial workers. Refining showed one of the lowest labor turn-overs, and there were 7½ percent more employees in 1936 than in 1927. If all business had kept that pace there would never have been an unemployment problem. The oil industry, employing a million workers, has been lifting the face of labor, and not grinding it.

The experience of my own company may be illuminating in the search for a monopoly factor. Sun Oil is one of the smaller integrated companies. Control and management have always been held within a single family. It is only about 13 years since we produced and marketed gasoline. At that time the industry had grown to full adult stature, and we were left no room to doubt that it was thoroughly competitive. Nevertheless, our company was able to make a place for itself. We found no monopoly to freeze us out, and no excesses of competition to starve us out. We have never assumed a divine right to a place and a share in the industry. If somebody else could serve the public better in quality or price, he was entitled to the business. That is still our attitude, and the attitude of the industry. Everybody has recognized that his right to continue in business depends on his ability to give the public what it wants at prices it is both able and willing to pay. To live up to that formula has kept all of us scratching. It has been a case of "root hog or die" and my agricultural friends tell me that the most vigorous rooter is usually the healthiest hog.

I have outlined the accomplishments of the industry to show that it is serving the public well. If I am right, there is no need for drastic changes in governmental policies respecting it. The industry has become what it is under a regime of free enterprise and wide-open competition, with little governmental interference. I am convinced that it will give best service in future under a continuance of just such conditions. I believe legislation such as has been urged in some quarters would be disastrous to both the industry and the

public welfare. I am confident especially that your investigations will lead to the conclusion that neither the industry's record nor the public's welfare justifies any of the punitive measures that prejudiced and ill-advised self-interests have urged on behalf of a small minority.

I have noted that the consumer never seems to get excited about his treatment, although his would be the first protest if he felt he was getting a bad deal. He only asserts himself when he considers the taxes on our products, which of course he has to pay. At that point the industry and its customers are in agreement. The excises on gasoline, averaging about 5 cents to the gallon, represent a manufacturer's sales tax of right around 100 percent. No other industry makes a comparable contribution to public revenues; just about \$1,000,000,000 yearly.¹

Let us turn now to the technical advances that have been introduced by the oil industry. The first oil well, in 1859, was only 69 feet deep. Today we go 2 miles deep. The early wells were all "wildcats"; nobody knew how to locate oil save by boring. Today geologists and geophysicists study terrains, test geologic structures, giving the driller invaluable help. We have learned about reservoir energy and how, by conserving it, to increase the yield of oil.

THE INDUSTRY'S TRANSPORTATION SYSTEMS

Mr. PEW. These advances have cost effort, time, patience, and millions upon millions of dollars. The industry, starting from scratch, has had to devise all its own methods, apparatus, paraphernalia, and so forth, and it has always welcomed new ideas. Take transportation. We deal in cheap and bulky materials, and have developed a complete and unique organization to move them. Our pipe lines gridiron much of the continent. Small "gathering lines" bring crude oil from wells to trunk lines, which in turn carry it to the seacoast, whence tank ships move it to refining centers thousands of miles away. The refined products, in turn, flow away by other pipe lines to the consuming areas, or move by rail in tank cars. The 125,000 tank cars used by the industry are owned privately and not by the railroads.

Every link in this transportation chain was devised by oil men to meet their special requirements. No part is adapted to serve any other industry. All movements are one-way movements. Something over a billion dollars represents the depreciated investment in this one department. So enormous is the freight of crude oil and its refined products that well over one-half of all ocean-going freight tonnage transported under the American flag is handled by the tanker fleet of nearly 400 vessels. Incidentally, this fleet would be drafted as an auxiliary to the Navy in war; new tankers are built to meet naval requirements for power and speed. The oil industry thus provides, and in peacetime maintains, one of the expensive elements of national defense.

Dr. LUBIN. May I ask the witness a question at this point? I note that the industry takes credit in maintaining a reserve fleet for

¹ According to figures compiled by the Distilled Spirits Institute and the Alcohol Tax Unit of the U. S. Internal Revenue Dept., the distilled spirits industry paid in taxes for calendar year 1937, \$1,021,135,100; for calendar year 1937, \$917,277,086. According to spokesmen for both these organizations, taxes paid "by the industry will run well over a billion dollars for the 1939 calendar year."

naval requirements. Does the Federal Government subsidize you in building those ships at all?

MR. PEW. I think there were 12 boats that were built in a special way to meet special Government requirements.

DR. LUBIN. In other words, the Government was responsible for this additional power and speed and paid for it?

MR. PEW. The Government put enough money into those vessels, as I remember it, to pay for that part of the cost which had to do with the special provisions necessary to make those vessels available for Navy work; but I refer to all of these vessels, many of which were in addition to those 12.

Hundreds of sea-going, river, lake and canal barges are included in the transport system; and finally, 100,000 tank trucks make the final distribution of gasoline to 300,000 filling stations.

To this efficiency of transport is largely due the ability to serve products so cheaply. It is calculated that a third of the cost of the gallon of oil ready to go into the motorist's car represents transportation. Had the industry been content to rely on conventional transport facilities, that gallon would have cost probably twice as much.

This unique transport system is to the oil business what its assembly line is to an automobile factory. Anything which would interfere with the close correlation of producing and refining would be like requiring Mr. Ford's assembly line to be owned and operated by an independent or perhaps several independent and unrelated corporations. The pipe lines have been common carriers for over 30 years, their service open to everybody at rates filed with the Interstate Commission and State commissions and subject to change by them. I am assured and believe that the overwhelming majority of independent oil producers would come here to protest against any change in this relationship. Let me tell you, from the current experience of my own company, why I believe this.

In Starr County, Tex., we are developing a new producing area. Drilling has not yet gone far enough to define the field. We have 10 wells producing, from which, under Texas regulations, we are permitted to take something like 520 barrels daily. That is not enough to warrant construction of a pipe line, but if we were dickering with a pipe-line company it is all the business we could guarantee. We, of course, hope production will ultimately be much larger; but if we told the pipe-line man of that "hope" he would likely say, "Well, if you get all that production, it'll be you that will make the profits out of it; if you don't get it, my line will be a loss. So I guess you had better take the chances."

"But," we reply, "the law doesn't allow us either to build a line or to furnish you the money to build it with."

"Then I guess there will be no pipe line until the field is developed," retorts the pipe-line operator.

And there we reach an impasse. Our company can't go ahead and develop the field unless it is assured a pipe line, and the builders can't afford to lay a pipe line until the field is developed.

That is the picture where a new and speculative field is concerned. Now, consider a field like East Texas, that is highly developed and already has good pipe-line service, owned by the integrated companies. Suppose a group of producers, dissatisfied with their rates, fail to get the commission to change them and decide to lay their own

line. For about 2½ million dollars a line can be put down to serve 2,500 wells. In that field the average well is worth probably \$50,000. That is only 2 percent of the value of 2,500 wells, and with the guarantee of that business there should be no financing difficulty. The independent producers can have their own pipe line if they want it.

Why then have not producers, if conditions are unfair, been laying their own lines? Remember, rates are subject to strict regulation by interstate and State authorities. Obviously, dissatisfied producers would first appeal to public authorities for better rates. But in fact they have neither been building lines nor complaining about rates. I have known of only one case in which an independent line was laid, and I think it is still there, never having moved a barrel of oil. Likewise, my information is that in the thirty-odd years since pipe lines were made common carriers there have been only two cases before the Interstate Commerce Commission complaining of their rates; in one the decision sustained the rates, and in the other the complaint was withdrawn. On the record I submit that the long-established correlation of transportation with the other divisions of the industry has given practically universal satisfaction within the industry, and has been a leading factor in giving American consumers the cheapest petroleum products in the world.

Thus far I have discussed crude oil pipe lines. But pipe lines are used also to distribute gasoline from refineries to consuming areas. We were one of the first companies to put down a gasoline line. A word now about gasoline lines. My own company has some 850 miles of them. When we laid them most people believed the idea pretty wild. We realized that such distribution would be impracticable unless there was an assured market along the line's route. So, years before a pipe was put down, we had our marketing organization develop business along the proposed route. This was expensive; we lost a good deal of money building up a volume that would keep the line busy. And even then, before starting construction, we went to the railroads and offered to drop the project if they would give us the same rates we proposed to set up for the pipe line. They refused, the line was laid, and when it was ready we published the same rates we had asked them to make. Since then we have three times reduced those rates—and it is not unfair, I hope, to observe that these reductions were made in a period when the railroads were pressing the regulatory authorities for higher freight rates.

THE VICE CHAIRMAN. What percentage of the business of the gas line is done by other than your own company, your own organization?

MR. PEW. I think the last figure I saw for the year 1938 indicated that we were moving about 87 percent of our own product.

THE VICE CHAIRMAN. How can you mix gasoline coming from different manufacturing plants, with different standards perhaps?

MR. PEW. We have that worked out very nicely. Between the grades we put some special gasoline and we color that a special color, and then they telegraph along the line how that is proceeding, and at a given time they take out a sample and cut it off.

In conclusion of this phase I wish to quote from the report of Walter M. W. Splawn, special counsel to the House of Representatives' Committee on Interstate Commerce in 1933. Dr. Splawn, now

a member of the Interstate Commerce Commission, investigated, for the committee, the whole pipe line situation. The report, in two volumes, covers almost a thousand pages. I should like to read just a few lines from the conclusion.

Oil pipe lines—
he says—

are found as a result of this investigation to be plant facilities in an integrated industry. They are very different from railroads, in that railroads carry all manner of freight whereas oil pipe lines are limited to one product; petroleum carried in one direction, from a diminishing source of supply. Pipe lines have been built primarily by oil companies. It appears very difficult to apply the "commodities clause" to oil pipe lines. If the oil companies are forced to sell the pipe line companies, who would buy them and who would build to newly discovered oil fields? It appears that whatever regulation of oil pipe lines may be necessary, it may be provided in recognition of the character of pipe line transportation and its relation to the oil business.

The importance of the industry's specialized transportation system will be best illustrated by a comparison of transportation costs by different facilities. Our company employs all of them, and for 1937 I have tabulated the ton-miles and the costs of carriage by each facility. The figures follow.

Year 1937

Type of transportation	Ton-miles	Percent	Cost per ton-mile
Water.....	10, 378, 739, 263	87. 92	\$0. 00063
Railroad.....	244, 358, 433	2. 07	0. 01640
Pipe line (crude).....	744, 174, 990	6. 30	0. 00477
Pipe line (gasoline).....	372, 992, 210	3. 16	0. 00527
Trucks.....	64, 219, 988	. 55	0. 04873
Total.....	11, 804, 484, 884	100. 00	*0. 00162

*Weighted average.

I think this is an interesting table. It is only of interest, however, to the extent that it represents our company's costs on these several transportation facilities. By water we moved a little less than ten and a half billions of ton-miles of petroleum and petroleum products.

THE VICE CHAIRMAN. What sort of waters did you move those over?

MR. PEW. That includes all of our water transportation.

THE VICE CHAIRMAN. Ocean transportation as well as river?

MR. PEW. The ocean transportation mostly—that is, in bringing our crude oil from the Gulf of Mexico to our refinery at Philadelphia.

THE VICE CHAIRMAN. Have you broken that down to determine what is the cost of transportation other than ocean, or do you have such transportation? Don't take the time to look it up.

MR. PEW. He tells me we have it.¹

THE VICE CHAIRMAN. Put it in the record later, if you don't mind.²

MR. PEW. It is interesting to note that includes all the transportation—barge movements, small barges, large barges, small boats, and so forth.

Eighty-eight percent of the ton mileage was handled by water at a cost of six one-hundredths of a cent per ton mile.

¹ Refers to Mr. Robert Dunlop, economist, who sat at the committee table with Mr. Pew.

² Mr. Pew supplied the figures later in the day. See p. 7196, *infra*.

By railway we moved just under 250,000,000 ton miles, representing just over 2 percent of the total, at a cost of $16\frac{4}{100}$ cents per ton mile.

Representative REECE. Mr. Pew, did you read the correct cost per ton mile? You said six one-hundredths.

Mr. PEW. That is right—six one-hundredths of a cent. You have the decimal point, and the second naught is the pennies, the third naught is the tenth of a cent, and the fourth naught, the fourth figure, is the hundredths of a cent—it is \$.0006 of a cent.

Whereas by rail the cost was $16\frac{4}{100}$ of a cent.

Now, I have the pipe lines split down into two parts, that of movement by crude and by movement by gasoline. The two of them are a little under 10 percent and cost us just about a half a cent per ton mile.

Mr. BERGE. May I ask at this point if you made a similar breakdown of the water transportation, how would it come out? What percentage of the water transportation would have been crude and what would have been gasoline, roughly?

Mr. PEW. I would say 80 or 90 percent would have been crude.

Mr. BERGE. How can that be reconciled with the I suppose known fact that most of the wells are a fairly good distance inland? Do you mean that you take it to the coast in pipe lines and refine it, and then send it on?

Mr. PEW. We take it to the coast in Texas and then we load it into our tank steamers and move it 1,800 miles to our refinery at Philadelphia, whereas much of this crude oil only moves about 300 miles, so that it all moves nine times as far by water as by pipe line.

Mr. BERGE. I see. Then it would be fair, however, to say that a much larger proportion of the oil than is indicated by these figures does at some point in the transportation process move through pipe lines. Just looking at these figures without any explanation of them, one would assume that in 97 percent of the transportation of oil, the pipe line is not an important or necessary process. That is not so, as I understand you; the bulk of this oil would go through pipe lines at some stage of the process, but the figures set up on a mileage basis would show a larger distance by water, and these figures would be quite different if you were to set it up on the basis of that oil which moves exclusively by water, wouldn't they?

Mr. PEW. Oh, yes. This statement was prepared merely to give you gentlemen a bird's-eye view of the costs as between these different methods of transport.

Mr. Cox. While you are talking about that table, Mr. Pew, could you tell us whether or not most of that railroad movement you show there is over long or short hauls?

Mr. PEW. Oh, definitely, I think our railroad movement averaged 150 miles. I may be wrong about that.

Mr. Cox. It is comparatively short.

Mr. PEW. Yes.

Mr. BERGE. I don't mean to press it too far, but doesn't this statement rather minimize unduly the importance of pipe lines, because if the independent had a pipe line, he could get to the ocean on the same basis as the major company.

Mr. PEW. Minimize the importance of pipe lines?

Mr. BERGE. So if you were 200 miles from the ocean and had no way to get it there, you can't use this cheaper ocean transportation.

Mr. Cox. You didn't mean this table to have any value so far as volume is concerned, is that right?

Mr. PEW. I only developed that table to give you gentlemen a bird's-eye view of the relative costs of the various means of transport which we employ.

Mr. Cox. Perhaps it would help if you would hazard an estimate as to how much of the oil moved at one point or another in its life through a pipe line.

Mr. PEW. I should say very definitely all of it.

To recapitulate, the per-ton mile truck-transportation cost is 3 times that by rail. Rail transportation in turn costs more than 3 times that by pipe lines; while it was over 26 times that by water. Recalling, therefore, how large a factor transportation is, it will be seen that it is vitally important to maintain this transportation system at full efficiency. We believe, as Dr. Splawn evidently did, that this can be accomplished by leaving transport in its present relationship to the industry, that of a plant facility, an assembly line.

And I think I ought to say at this point that this statement should not be accepted at its face value because it does give the railroads the worst of the deal; in other words, it takes into consideration the cost to us of railroading, whereas we put in this statement the cost to us of the pipe-line transportation. We don't use in the compilation of this statement the published pipe-line rates, whereas we do use the published railroad rates.

Tank ships bear much the same relation as do the pipe lines. They are built especially for moving petroleum and its products; nearly all their service is in hauling for the company that owns them. Exceptions occur when one company, to meet a peak of business, charters a tanker from another company; the vessel then becomes a contract carrier. There is practically no common-carrier transportation by tanker.¹

INTEGRATION

Mr. PEW. Disintegration of the so-called "major" companies has been urged by a few special pleaders on the grounds that it would help one group or another of the so-called "independents"; yet my very definite information is that "independents" throughout the industry almost unanimously believe there would be disastrous effects from destruction of the integrated companies.

Industrial integration may be defined as vertical combination; uniting in one corporate structure the various operations through which the raw material passes in its transformation into refined products ready for the market. A perfect example of integration may be seen in the milk supply of a small town. A farmer owns his own land, raises his own cows, feeds them on his own produce, milks them in his own barn, hauls the milk to town in his own wagon and distributes it to the consumers at their doors. I can remember when this service went so far that the milk man even attended to the refrigeration. My grandmother kept her milk sweet by hanging it in a

¹ This subject is resumed on p. 7263, *infra*.

pail at a rope's end down the well. When the milk man came in the morning he poured the daily allowance of milk into the pail and accommodately lowered it into the zone of coolness at the bottom of the well.

Here is an instance of an industry which, in the old and simple days, was integrated.

Mr. BERGE. Are you through with pipelines at this part of your paper?¹

Mr. PEW. Yes, sir.

Mr. BERGE. Could I ask you just several questions on that before we leave it, that are bothering me?

Mr. BERGE. It seems to follow from what you said in answer to my last question that the pipe line, even though the distance of transportation may be in some instances relatively short, is a bottle neck, to use a word that we employ around here, through which this crude must all go, whether the distance be 200 or 500 or 1,000 miles.

Now, it is true, is it not, that most of these fields are reached primarily, and in some cases exclusively, by the pipe lines owned and controlled by a single integrated company?

Mr. PEW. I don't believe that I can give you the detail as to the number of pipe lines that run into each individual field. I can say, however, that most of the larger fields have a great many pipe lines, and I might also say that it so happens, for instance, in the East Texas field that there is a great deal more capacity than can possibly be used. And there is a lot of competition to get—

Mr. BERGE (interposing). Competition between the integrated companies for that movement?

Mr. PEW. That is right.

Mr. BERGE. Most of those fields or many of them are not reached by tank cars, and tank car transportation, of course, would be more expensive and couldn't be very effectively used in competing with the established pipe lines. Isn't that as a general proposition true?

Mr. PEW. I think that most of the fields are within reasonable pipe-line connection with a rail siding some place.

Mr. BERGE. Would you have to truck the oil to the cars, or move it by pipe line to the cars and then load it in the tank cars?

Mr. PEW. Quite.

Mr. BERGE. Either one would be more expensive.

Mr. PEW. The customary way is to lay a short line.

Mr. BERGE. But either way would be more expensive than a through movement. As a general proposition, the pipe-line operation in comparison with other branches of the business is a fairly profitable operation; is it not?

Mr. PEW. I think that is a fair statement.

Mr. BERGE. I am only asking these questions in general, because I have no statistical information that I am familiar with at all. I am merely trying to develop the general proposition. Then, is there anything to prevent the integrated companies in their financial operations between their subsidiaries, with each other, or on their books as a single company, from transferring losses from another department, I should

¹ Refers to Mr. Pew's prepared statement, from which he was reading.

say from offsetting losses from another department of the business against the profits from the pipe-line business, or from using the profits of the pipe-line operations to cover the losses, temporary perhaps, but nevertheless losses that they sustain in other branches of their business?

Mr. PEW. I don't think that in an integrated company one can accurately determine the profit in any one activity. As an illustration, about 33 percent of the money that is engaged in the conduct of the business of our company is devoted to those overhead activities, let us say, which are not distributable. I refer to the stocks of oil, the money that we have invested in accounts receivable, and other current assets, and cash in the bank. So that about a third of the money that we have in our business is not applicable to the conduct of any one activity, so that any distribution we make of the cost of that carrying charge to each particular department must of necessity be arbitrary.

Mr. BERGE. Then the accounting ramifications of a large integrated company are so complicated it is impossible to tell whether a particular department of business is making or losing money?

Mr. PEW. I don't think Henry Ford could tell you accurately what it costs him to drive bolt 203 in the body of his car.

Mr. BERGE. I don't suppose he could. On the other hand, it seems to me that that is a considerably more refined distinction than where the marketing of oil or the retailing of oil as an independent process could be determined on a cost-accounting basis. However, passing that, I suppose there can be no question that an independent refiner who has no production or marketing or retailing activities, who only refines oil and buys his crude sources from another source and sells them to a marketer, certainly knows whether he is making or losing money on his refining operations because that is all he does.

Mr. PEW. He has his own overhead, which is especially applicable to that particular activity in which he is interested.

Mr. Cox. On this subject there is one question I would like to ask, to clear up a doubt in my mind. I understood you earlier in the morning in answer to a question which the chairman asked, to say you felt confident that the marketing operations of your company, considered alone, as I understood it, were carried on on a profitable basis. I have a little difficulty in reconciling that with the statement you made just now about the difficulty with determining—

Mr. PEW (interposing). I thought I qualified that by saying "as near as we could figure." There are several ways that you can distribute these funds which are not definitely earmarked as having to do with any particular one activity. Some people distribute those arbitrarily on the basis of the amount of business that is done. Some people distribute it on the amount of money that is paid out to labor. Others distribute it by devious methods, and still others by executive action. Now you can take your choice, but when I have been asked, as I have on many occasions, to tell the way in which we determine the cost of a gallon of gasoline, I have found that it was impossible to do so, and on investigation I have found that expert accountants have time after time attempted to make such a determination and have always failed.

Mr. Cox. I just want to ask one more question about that. Whatever methods have been tried in your company, you feel sufficiently confident in their general validity that you are still prepared, in

answer to the chairman's question, to say that so far as you can tell your marketing division, quite apart from your other operations, is a profitable enterprise?

Mr. PEW. Well, it has been so satisfactory and profitable that by any one of these yardsticks it still shows a profit.

Mr. COX. Doesn't make any difference what method you use?

Mr. PEW. No.

Mr. BALLINGER. Mr. Pew, have you ever heard of any complaints from independents that they couldn't use pipe lines? I mean for instance, here is an independent oil producer; he has some oil he would like to get to the market; he takes it around to a pipe line and asks them to carry it for him. He is turned down. Have you ever heard of complaints of that kind?

Mr. PEW. I don't think that I can testify definitely to that. I think that there has been perhaps a time in a flush field when temporarily the pipe-line companies have difficulty in handling all the business that was offered to them, but my recollection, too, is that in every situation of that kind that was brought to my attention, the condition was straightened out just as rapidly as possible.

Mr. BALLINGER. Have you ever heard of a case where a pipe line suddenly, almost overnight, raised their rates so that an independent producer, shipping over those pipe lines, would find it impossible to sell to an independent refinery?

Mr. PEW. Such a condition as that has never been brought to my attention.

Mr. BALLINGER. You are not aware that the Government has received complaints on that? You never heard of that?

Mr. PEW. No.

Mr. BERGE. May I ask, Mr. Pew, if you care to express an opinion as to why there have been so many retirements from business in the last few years of independent refiners? No particular cases, of course, but whether there are some general factors at work in the industry that make for that? Is it their inefficiency?

Mr. PEW. I don't suppose there is any activity in any industry that has been subjected to the technological advances that have occurred in the refining branch of the oil industry. A plant which a year ago was considered the best in the country may today be made obsolete as a result of some new development in a refining process. If I may enlarge upon that, I will tell you that our company has just completed two plants at a cost of \$12,000,000, which replace plants that we had in operation 2 years ago and which we thought were among the best in the world. Today they are obsolete.

Mr. BERGE. Doesn't that necessitate your losing money? Again, you don't think you can allocate losses, but if the technological changes are occurring so fast in refining I suppose there must be some losses in that end of the business which you say integrated companies are able to bear, that the independent cannot bear. Otherwise, do those losses only hit him? It must be that the large integrated companies can sustain this burden, technological change, and larger investment in new refining properties, and so forth, because they are making handsome profits—drop the adjective—they are making profits in other branches of their business, perhaps the pipe line?

Mr. PEW. I don't think that is just the way to look at it, if I may be permitted to express an opinion. These technological improvements have been so revolutionary that they pay out for their entire cost in the reduction in the costs of operation over the 2 or 3 subsequent years after they are built.

Mr. BERQUIST. Putting it another way, Mr. Berge, wouldn't it be indicated that they were using pipe-line profits to bring up the average, over-all average, of profits when you bear in mind the rates of profit for the industry as indicated yesterday—and has been noted from 5 to 7 or 8 percent—and yet the average of profits for all pipe lines in 1937 was 28.4 percent?

Mr. BERGE. That is what I am driving at, apart from technicalities or accounting practice, about which I know nothing, would you want to say that it is not the practice to make up those losses in the refining end of the business, or other ends when you may sustain losses from the profits from pipe lines? Would you want to deny that that is done.

Mr. PEW. I don't think that feature ever enters the calculations of the executives of the so-called major companies. We are engaged in an operation which I would liken to Mr. Ford's assembly line. Our costs pile up all through that system, and when we get through we have a certain cost of gasoline—I don't mean that, sir, excuse me; we have a certain cost of products. Now, if I may develop that pipe-line picture a little more, we have a gasoline pipe line which runs from our refinery at Philadelphia to Cleveland. We put a large sum of money into that line—I think 7 years ago. Economically, it was justified; its earnings have been large, perhaps larger than we could have justified strictly from a point of view of earnings, and we found a very ready market for our material out in that western section of the country.

Last year they brought in a new field in Illinois. It completely upset the whole economic balance; and so we have to go out in that western territory and build ourselves a new refinery into which we put an investment well over \$6,000,000 in order to make obsolete the \$6,000,000 that we earlier put into the pipe line. Now, my great concern today about that gasoline pipe line is not whether we are going to earn too much in the future, but whether we are going to have any earning at all out of it. I just mention that because it is an element in this whole pipe-line situation.

Mr. BERQUIST. But for the over-all pipe-line situation you are not fearful that the earnings will be meager or anything of that kind?

Mr. PEW. I think every pipe line has to be considered on its own merits.

Mr. BERQUIST. Well, taking all of them, then—taking all of them, not individually but in the aggregate—naturally they won't all return the same rate, but when you get an average net earning of 28¼ percent, which is not very far from that 25; some have been a little bit lower and some have been a little higher; I am quite sure that the earnings of 1938 were not the highest.

Mr. PEW. May I develop that? In the first place, you have there an earning of 25 percent on the depreciated value of these pipe lines.

Mr. BERQUIST. That is the way it should be, shouldn't it?

Mr. PEW. I am going to paint the picture for you and let you decide. If you have a pipe line running from Philadelphia to Washington,

built, we will say, 20 years ago, bringing gasoline here into Washington to take care of the needs of the dealer, and as a result of the growth of the city there is a demand for another pipe line, what opportunity is there to get capital to bring in that new pipe line? Now, mind, the first line has been wholly depreciated and that gasoline is coming down here at almost no cost—a cent or two a barrel. Now, can we encourage a man to bring a new line down here if he is only going to have a cent or two a barrel? He will get no return on his capital. It seems to me, gentlemen, that these rates, whether it is right or wrong, must be established on the basis of the original investment.

Now, the second point I want to bring up is this—

Mr. BERQUIST. May I raise a point there? That is on the supposition that another pipe line would be needed. If it were needed, it would have to bear the costs, and so on?

Mr. PEW. Of the original investment.

Mr. BERQUIST. Of the original investment; and it wouldn't be needed unless it would bear that cost? The need would have to be that great, wouldn't it?

Mr. PEW. Yes; but they would have to be assured of a rate to justify building that line, and that rate would have to include the original cost of the line.

Dr. LUBIN. May I interrupt at that point? I am interested in the logic of the argument. Why wouldn't this line be built? Is it because the first company, which had the first line that had been depreciated so there are no depreciation charges involved, would therefore be able to undersell the second company that would have to charge full cost?

Mr. PEW. Well, I am assuming for the purpose of the discussion that that line is carrying oil for a group of different companies, and that they charge these companies a certain rate for transportation as though it had been shipped over the railroad.

Dr. LUBIN. In other words, their cost delivered in Washington would be higher than the cost of the original company that built the line 20 years ago.

Mr. PEW. He would have to charge a transportation rate several times as high as the other fellow.

Dr. LUBIN. Grant that fact, why wouldn't the line still be built? Would company A that owned the line lower their selling price in Washington because of the fact that their transportation costs were lower?

Mr. PEW. I am assuming that rates are based on the depreciated value of the line.

Dr. LUBIN. I grant that fact.

Mr. PEW. And that the commission reduces those rates in accordance with the reduction in the investment. Now, if you were bringing oil down through that line, you might pay 2 cents a barrel for transportation costs. If I had to build a new line I would have to charge 8 cents a barrel. How could I compete at 8 cents with the man who had a 2-cent price?

Mr. BALLINGER. Mr. Pew, how can you completely depreciate your property? You are constantly keeping it up intact as it was originally built, so you can't completely depreciate a property. You have got to reinvest.

Mr. PEW. Well, the principle is there. You might have 10 percent left in the property, but——

Mr. BALLINGER. What?

Mr. PEW. You might have 10 percent left.

Mr. BALLINGER. If you had a pipe line costing \$200,000, let us assume, and depreciation 20 years; at the end of 20 years you have \$200,000 invested in that line. You haven't depreciated anything because your depreciation reserve takes that up and replaces the line intact. You have still got an investment in it.

Mr. PEW. I am assuming that the line lasts for 20 years.

Mr. BALLINGER. It will last longer if you keep it up.

Mr. PEW. No; a gasoline line properly built through this section of the country will last for 20 years without any replacements.

Mr. BALLINGER. But you make allowance for depreciation so it can go on as long as it is needed. That is what your depreciation reserve is for.

Mr. PEW. But where is that money?

Mr. BALLINGER. Keeping the line up to modern conditions, not allowing it to depreciate. That is what you have your depreciation reserve for; it is constantly repairing it as you go along.

Mr. PEW. All right; then why should we base the rates on the depreciated investment in these lines?

Mr. BALLINGER. You base it on the bare rate after you take out the depreciation reserve.

Mr. PEW. That isn't the way these have been figured. If you add the depreciation reserve to the amount of investment in these lines, then you and I are in agreement.

Mr. BERQUIST. On that basis before depreciation the figure corresponding to the 28.4 would be something like 12 or 14 percent on the total investment.

Mr. BALLINGER. Would that lead to another conclusion you have here? You quoted Dr. Splawn here, and since this whole subject of pipe lines, I think, is going to be before the committee here for a good deal of time, do you subscribe to this sentence of Dr. Splawn:

If the oil companies were forced to sell the pipe-line companies, who would buy them?

If they are that good an investment, do you think you would have any trouble selling them?

Mr. PEW. I think that is a fair question. I still think there would be a very serious question as to who would buy them.

Mr. BALLINGER. Well, everybody today in America is looking for a good investment.

Mr. PEW. I know; but in order to make a good investment out of those pipe lines you have got to have somebody feeding the oil into one end and taking the oil out of the other.

Mr. BALLINGER. I assume that.

Mr. PEW. In the East Texas field I understand there are more than twice as many pipe lines as there is oil to feed them.

Mr. BALLINGER. But they make good returns.

Mr. PEW. All right; but suppose you and I bought one of these lines and the shippers on the one hand and the receivers on the other thought you and I weren't very attractive fellows and they would say to us, "We are going to ship our oil over the other line," so we

have got the line with nobody to put oil in at one end and nobody to take it out at the other?

Mr. BALLINGER. If we are going to sell all the pipe lines in that field to independents—I mean independent people not connected with the oil business, just investors—isn't it a little stretch of the imagination to assume that just because of that transaction they jump from my pipe line to another pipe line? They have to go somewhere. Somebody gets the benefit of it.

Mr. PEW. Then what useful purpose would be served?

Mr. BALLINGER. I am just challenging this statement here. I don't agree with the statement and I wanted to see if you agree with it. If the question comes to the front that perhaps we ought to divorce the pipe lines, I don't think the argument ought to be allowed to stand that you can't sell them, because I think there would be plenty of investors who would buy them. Of course, they wouldn't make too much money, perhaps, under a real open system.

Mr. PEW. Of course, you know these pipe lines are in the process of flux all the time, being taken out of certain fields and run into other fields. It is a very difficult thing, as I pointed out a few moments ago, to get capital to run these lines into new fields.

Mr. BALLINGER. You can always get capital from investment bankers; at least that is my theory; I don't know. Sometimes it is pretty hard, but that is the theory. If there is a need for something, the investment banker is supposed to be on the job.

Mr. PEW. Suppose a man has a prospective oil field such as our Starr County development, which we have great hopes for, do you suppose I could go to a bank and get them to loan me money to lay a line in the East Texas field unless I put my name on the note? I don't think so.

The VICE CHAIRMAN. Suppose we adjourn until 2:30 and figure that all out.

(Whereupon, at 12:30 p. m., the committee recessed until 2:30 p. m. of the same day.)

AFTERNOON SESSION

At 2:30 p. m. the committee reconvened, Representative Reece presiding.

Acting Chairman REECE. I understand there were some appendixes offered yesterday for the record, the printing of which has not been ordered. These appendixes may be printed, and it is the desire of the committee that Nos. 1, 6, and 5 be printed in the order named and that the others be printed in consecutive order.¹

Mr. Pew, you may conclude your statement, if you desire, after which, if it is the wish of the committee, Mr. Cox, of the Department of Justice, may propound any questions which he might desire, and then the members of the committee may follow up with questions.

You may proceed, Mr. Pew.

Mr. PEW. At the time we left off I was discussing the broad, general question of integration.

Acting Chairman REECE. What page of your manuscript are you reading from?

¹ "Exhibit No. 1138," which is printed separately, with "Exhibit No. 1139," as Part 14-A.

Mr. PEW. Page 11, the last paragraph.

Here is an instance of an industry which in the old and simple days was integrated, later became disintegrated, and still later was reintegrated. Thus the village shoemaker made his shoes and sold them in his shop. Later, factory-made shoes were sold first to the wholesaler, by him to the retailer, and by him to the wearer. Still later many shoe factories established their own chains of retail stores, short-circuited the wholesaler, and took their product direct to the consumer; so you see Coward, Florsheim, Walkover, and any number of other shoe stores handling particular lines exclusively, going back to first principles. Such illustrations roughly parallel the integration that has grown into the petroleum industry, which we may now examine for a moment.

In the beginning, one group of men devoted themselves to drilling wells and producing the oil. Another group, quite independent of these, took the oil in casks and hauled it in wagons to the refinery or to the nearest stream by which it could be floated to a refinery; and there still another group took it and refined it. Finally, the refiners in turn sold their products to the marketers, and these distributed them at retail to consumers.

The first step in integration, so far as I can discover, was taken when the pine line was invented to move oil from well to refinery. This was much cheaper than wagon hauling, and the wagoners protested it so violently that there were riots, in which some of the pipe lines were torn up. The wagon haulers seem to have been the earliest advocates of disintegration.

The petroleum industry is necessarily an integrated one, whether through common ownership of all the activities or because of contractual relations between the several divisions of the industry. The producer of crude must have a market for it and must have a transporter to carry it to that market; that is, to the refinery. The refiner, in turn, must have a selling agency to dispose of his products and he must have means of transporting them to that agency. If producer, transporter, refiner, and marketer are all owned and operated independently of each other, their common interest brings about what has been called contract integration; they deal with each other through contractual arrangements based on prices, rates, and so forth. Each activity makes the best bargain it can with the other. The refiner, for example, buys his crude as cheaply as possible and sells his products for the highest possible price. That means that every unit of activity in the line from the oil field to the filling station must have its own buying and its own selling organization. This is expensive.

But a greater difficulty is that among these multiplied buying and selling agencies there is nobody who has his eye on ultimate results—the final cost of the product and the price at which it can be sold to the consumer. Everybody is thinking of how to make the best deal with the man next to him in the line; nobody is worrying about the consumer down at the end of the line. Yet the consumer's ability to buy is bound to depend on the price at which the products can be offered to him. In the completely integrated unit of the industry an executive authority—president, chairman, executive director, board of directors, or what you will—has its eye always on that party down at the end of the line: How would he react if these various hagglers along the way should get costs and prices up beyond his reach? After all,

the consumer is the boss; he makes or breaks the business; somebody must keep him in mind all the time; and the hagglers can't be expected to do it. They are too much engrossed with their own particular jobs; too many removes from the consumer.

Thus management knows that its job is to coordinate all stages and processes and bargainings to satisfy that consumer. To make the price a little lower, the quality a little higher, or the service a little better must be its constant effort. It is the village milkman, lowering the morning's milk to the bottom of the well.

THE SEARCH FOR TECHNOLOGICAL IMPROVEMENTS

Mr. PEW. Precisely because it is animated by this policy of consumer concern, integration sets the pace for efficiency. It sees the industrial picture as a whole, which no one of the units, operating independently and at several removes from the consumer, could do. Integration makes possible the reconciliation of all the conflicting interests along the line from the search for oil to the operation of the gasoline pumps at a thousand filling stations. It insures support for research, experiment, invention, improvement, in whatever department. Where differing interests as between independent departments would frequently tend to discourage improvements, the establishment of a common interest in general results works for better methods all along the line. It was not a wagon hauler, anxious to protect his job, who invented the pipe line; it was a refiner who wanted to get his crude a bit cheaper.

As to this matter of improving methods and processes, I may be permitted a word about the experience of my own company. In its earlier years the company specialized in its own brands of greases and lubricants, some of which had established markets practically all over the world. That was before the day of the automobile, when kerosene, lubricants, gas oil, and fuel oil were the chief products. The time came when we saw competition narrowing the market for our special lubricants, and when also we realized that gasoline was destined to be our most important product, with a new type of lubricant, adapted to motorcars, taking second place. So we determined—only about 13 years ago—to go in strong for gasoline. That meant that we must have cracking equipment in order to get the fullest recovery and best quality of gasoline from our crude. But cracking was covered by patents, which meant royalties. After a thorough investigation we decided that to license a cracking process would be too expensive and not otherwise entirely satisfactory. We believed we could develop a cracking process of our own, and by dint of heavy expenditures in time, effort, and money we succeeded.

Turning next to automobile lubricants, experimentation convinced us that there was room for definite improvement in this line, and so we set afoot the long series of mechanical studies and technical investigation from which was developed our "mercury process" for lubricants—a process that we regard as the best in the business.

Again, like everybody else in the industry, we had long realized the limitations imposed by the older refining methods. Nowadays a great number of products come out of a barrel of petroleum, and the industry needed a refining technique by which all these products could be turned out in the proportions in which the market was demanding

them at any given time. Such a process is, of course, the ideal of any multiple-product industry. Refiners had long dreamed of it and worked in their laboratories to develop it, but it remained for a French gentleman, M. Eugene Houdry, to hit upon the big idea. He developed experimentally a catalytic process of cracking by which the crude could be turned into its various derivatives in substantially whatever proportions they were wanted: the entire barrel of crude turned into gasoline, if desired—a revolutionary advance incidentally in petroleum conservation.

Unable to enlist European capital, M. Houdry came to this country and interested the Standard Oil Co. of New York. Later the Sun Oil Co. became associated in the development of the process and of apparatus for its large-scale operation. Infinite patience and heavy costs have brought success to our endeavors. Plants employing the process are now in operation in this country and Europe and more are now being built.

Among major advances in the industry, one other may be mentioned. Our chief refinery is at Marcus Hook, at the head of Delaware Bay, to which we bring crude from the Texas coast by tank vessels. I have already spoken of the large part which transportation costs play in this industry. Our first tanker, the *Paraguay*, had a capacity of 20,000 barrels, made the round trip between the Gulf Coast and Delaware Bay in 24 days, at a cost of 36 cents per barrel. Today we operate a fleet of 14 tankers, the most modern of which carries 138,000 barrels of crude, makes the round trip in 13½ days, at a cost of around 11 cents per barrel. Incidentally, wages are now many times what they were in the days of the old *Paraguay*.

Realizing the importance of transportation, and the possibilities of improvement in tanker design and construction, our company over 20 years ago established as a subsidiary the Sun Shipbuilding & Dry Dock Co., which builds tankers and other vessels for our own needs and also for such other companies as may contract for them.

I have gone into some detail regarding the practical advantages of integration in such an industry as ours with special reference to its part in lowering costs, raising quality of products, and serving the consumer. I have cited my own company's experience because, naturally, I know most about it. But I wish to add that competition among the companies has always been keen in the search for better methods, lower costs, higher qualities, and the general satisfaction of the consumer; and the industry as a whole has benefited by all the advances. My own company is and always has been strictly independent as to ownership, policies, and management. It has never engaged in any combination or conspiracy to restrict or control any phase of the business.

Integration, of course, is the essence of mass production, in which American industry has led the world. Mass production reduces costs, makes lower consumer prices. But mass production demands a mass market. To secure it the producer must turn out a product good enough to deserve a mass market. You might integrate until the cows come home, but if the product wasn't good enough or its cost was too high, you just wouldn't sell it. So integration coordinates all the stages of production in the common effort to get the right product. And when you have that right product, you must let the

consumer know about it. You can't hide its light under a bushel. You must give it an identifying name, brand, or label, and then you must advertise it under that name or brand. After that, you must keep it good enough to deserve the claims you have advanced for it. A brand name is a valuable asset—if you live up to your claims for it and the customers' expectations of it. But it is a liability otherwise. If you advertise a mouse trap as the best in the world, you must keep it the best, even if you have to put out a new model every year. That brand name is your pledge to the buyer—your honor is staked on it. The integrated business can make sure that all its divisions and branches work in harmony to turn out a product always worthy of its name and fame. The oil company, adapting its service to all varying conditions of its wide-flung market, produces gasoline and lubricants to fit season and region. The integrated company, constantly studying all phases of its marketing problem, recognizes these variations and adapts its products to them.

OIL INDUSTRY SUPPORT OF CONSERVATION

Mr. PEW. In view of my enumeration of advantages in integrated organization, you might well ask, "Why isn't your whole industry integrated?" For, after all, unintegrated and partially integrated units compete throughout the industry, and do it successfully. The truth is that success in any business depends a good deal more on men and management than on the formalities of organization. It is my information and belief that disintegration of the so-called major companies, instead of helping the so-called independents would harm them; because as a matter of fact a large share of the independents are fully integrated, and practically all of them are at least partially integrated. Those who would dissect the industry certainly advance some strange proposals. Thus, one of their leaders recently declared that "the majors have made handsome profits on their production of oil, due to legislation of the Federal Government and actions of the Department of the Interior holding production below market demand." As Federal measures thus serving the majors, he enumerated the Connally Act, forbidding interstate transportation of "hot oil"; the interstate oil compact, to help the States regulate production of crude; the tariff on petroleum products; and the monthly forecasts of probable demand, prepared by the Bureau of Mines. These forecasts, he said, "provide a blueprint for the producers and the oil-producing States to follow." In short, this advocate of disintegration would have Congress undo about everything that has been accomplished in the last few years toward conservation and greater efficiency in the industry. It is the overwhelming testimony of disinterested observers that the "hot oil" law, the interstate compact and the Bureau of Mines estimates have been altogether useful and beneficial. They have promoted conservation, have reduced the costs of producing oil, and have cheapened gasoline to the consumer. I should like briefly to review the accomplishments in which they have been so helpful.

The interstate compact to conserve oil and gas has been ratified by the legislatures of Colorado, Illinois, Kansas, Michigan, Oklahoma, New Mexico, and Texas. Each State binds itself to prevent operation

of oil wells with a wasteful oil-gas ratio, or otherwise under wasteful conditions. The compact has no purpose to limit the production of oil and gas, to create monopoly, or to bring about regimentation. Under it a Commission was set up to study measures looking to conservation of oil and gas; to report recommendations to the member States; and to assist in coordinating their police powers to promote maximum recovery. In operation the compact has broadened the interest and understanding of State officials, the oil industry and the public in true conservation. The oil-producing States determine for themselves how much oil can currently be produced without waste and how it is to be divided among the fields and wells of each particular State. In making its recommendations the Commission is aided by the advices of the Bureau of Mines; but each State exercises its own judgment as to the amount that may be produced without waste.

The Federal Government, through the Connally Act, has sought to bolster this State policy. That act provides that petroleum or its products, produced in violation of State law, may not be moved in interstate or foreign commerce. The operation of these measures has emphatically demonstrated that State and Federal authorities can work together to conserve oil and gas resources. Without any additional cost to the consumer they have benefited producers, refiners, and distributors. To undo these accomplishments would mean a set-back in conservation, and disaster alike to the public and to every branch of the industry.

The whole subject of conservation should be viewed in the light of modern experience. Medieval philosophers commonly assumed that any policy or transaction which benefited one group must do so at the expense of some other group. If one party to a trade profited, they insisted that the other must lose. We know that is not true; we understand that under our free system of competitive enterprise all groups may benefit together; and it is in this light that we must recognize the benefits of conservation. Because of it, gasoline is cheaper to the consumer, and he uses more; the producer profits because production costs are less and he sells more crude; transporter and refiner get more business; and so everybody benefits.

KEENNESS OF COMPETITION IN RETAIL MARKETING

Mr. Pew. With regard to retail gasoline marketing, in which in some areas intense competition has existed recently, a plain statement may clear up some misapprehension. In 1935 Iowa adopted a chain-store tax law under which the tax per store was graduated upward as the number of stores in a chain increased. This law applied to company chains of filling stations, among the rest. Some other States adopted similar laws, and for a time there was a widespread demand for them. The threat of their general adoption has been charged with responsibility for the general retirement of refiners from service-station operation; and unquestionably it was in large part responsible, but apparently there were other factors, one of which was a rash of price cutting by independent station operators which had broken out in various parts of the country long before the Iowa Chain Store Act was passed.

These regional price wars were acutely embarrassing to operators of chain filling stations. The reason is quite simple. Suppose a company had 20 stations scattered throughout a city. Next door to one of them an independent operator sets up a pump and cuts the price—and the quality—of gasoline in that immediate neighborhood enough to compel the company station either to lose its business or meet the cut price. But to cut its price at one station would compel it to make the same cut at all of its 20 stations in the town. To do that would mean to do all its business at a loss; yet to fail in meeting the competition would be to invite the price war to spread to the entire town, cutting down the gallonage of all the company's stations and forcing the entire chain to operate at a loss. Precisely this experience was had in so many places that various companies ceased to operate their filling stations several years before the chain-store tax laws were passed. Then, when the legislative crusade against chain stores became general, most refining companies decided to retire from filling-station operation. The results have been disastrous; particularly disastrous to the independent filling station operators. So long as the company stations were operating, it was customary to publish as regular market news the prices at which gasoline was being sold by refiners to retailers, and also the price at which the retailers were selling to consumers. Between these was a differential, the retailer's margin, or spread. This margin varied with circumstances and regions, from about $2\frac{1}{2}$ to $4\frac{1}{2}$ cents, probably averaging for the entire country around 3.75 cents. When the refiners quit retailing, their quotations of service-station prices could no longer be published because they were making no such quotations. The element of leadership and balance which they had afforded was withdrawn. Every filling-station operator was an independent fixing his own selling price and therefore his margin; suspicious of his competitors, and inclined to fight to protect his gallonage. Thus, retail margins became uncertain, price wars common, and dealer margins reduced.

That is, very briefly, the story of the general adoption of the Iowa plan of retail marketing. First was the impossibility of meeting price cuts through chains of stations; after that, the fact and the threat of chain-store laws. It has been charged that there was a third reason, namely, that the refining companies wanted to avoid social-security taxes for their filling-station employees. Personally, I do not believe this was a serious consideration. The oil industry has always been liberal to the point of generosity with its employees. Its wages have been high and it has been a leader in bringing about shorter working hours and better working conditions. On this point the best testimony is its immunity from labor disturbances. The cost of social-security taxes would not, alone, have been a compelling reason for retiring from retailing. The other reasons I have cited are really responsible.

Personally, I strongly suspect that the refining companies got a bit panicky and made undue haste to dispose of their service stations. I am convinced that when operated on sound merchandising lines the company service station can take care of itself. But I have in mind a station that is a good deal more than merely a sign and a gasoline pump. I might call it the integrated station; one prepared to pro-

vide the motorist a wide range of services and supplies in addition to filling his tank with gasoline. Motorists buy tires and tubes and spark plugs and an endless lot of accessories and incidentals. Their cars have to be washed and lubricated. The integrated station would supply these needs and render these services all at substantial profit, and not be entirely dependent on gasoline sales. I believe the occupation of this broad field would have enabled the companies to continue operating their stations at a reasonable profit, to meet cut prices on gasoline, and in the end provide such leadership and balance as would put the business on a normal earning basis.

As to the charge that there has been an undue multiplication of filling stations, I think you will find wide differences of judgment. There are few more severe tests of patience than suddenly to find one's gasoline tank empty and no filling station in sight. But if there has been in some regions a disposition unduly to multiply stations, the example of the company chains could only have been salutary. My own company, for example, before we discontinued retailing always made a thorough study of conditions before locating a new service station. The traffic was surveyed and counted, the number and location of competing stations was noted, and no location was approved unless it had an apparent chance to do a fair business. Today, all this is changed. The retail dealer, lacking experience and expert knowledge, locates wherever his fancy—or the availability of a vacant lot—may direct. Lacking adequate knowledge of the cost of doing business he is easily tempted to cut his prices in the hope of increasing volume; and in no business does price cutting become epidemic more readily than in this.

This retailing problem has been the more acute because in a time of mass unemployment many have been attracted to gasoline retailing. The experience has demonstrated that the company-operated stations, though they were only a small proportion of the total number of outlets, served a useful purpose. But despite this experience, one faction of the reformers would require that petroleum products be sold at the refinery, and from that moment the refinery should have nothing more to do with them. This would mean taking away from the companies all their marketing facilities—tank cars, tank trucks, tank ships and barges, gasoline pipe lines, and storage plants. The effect, of course, would be further to confound the confusion brought about by the influences I have noted.

SAVINGS THROUGH MASS PRODUCTION

Mr. PEW. Disintegration simply proposes to turn the clock back—to surrender all the benefits of mass production. Can you imagine what a motorcar, such as you buy for a few hundred dollars, would cost if it came from a blacksmith's shop instead of an assembly line? One of the great motor corporations owns iron mines, coal mines, steamships, rubber plantations, blast furnaces, assembly lines, and a marketing organization that reaches into every part of the world. Obviously, if that company's cars were built in blacksmiths' shops it would greatly increase employment; but, just as obviously, they just would not be built. I don't believe anybody would seriously suggest disintegrating the motor manufacturing companies; yet the cases are

parallel. Or, consider the great steel corporations.¹ Some of them own their coal and iron mines, railroad lines, shipping, mills, and marketing organization. It falls into exactly the same general divisions as the petroleum industry—production, transportation, refining, and marketing. But I don't believe anybody seriously doubts that the close correlation of these divisions has been largely responsible for the splendid achievements of the motor industry, just as it has been largely responsible for the fine accomplishments of the oil industry.

DENIAL OF MONOPOLISTIC PRACTICES IN THE OIL INDUSTRY

Mr. PEW. Now, a word, Mr. Chairman, in conclusion. In what I have said on behalf of the oil industry, I have had constantly in mind the realization of how important is the inquiry that is engaging your committee. I recognize that its findings may give direction to vitally important determinations of national policy toward our industrial and economic system.

I have sought to show you that this industry has served the public well, and that it stands today as an excellent example of results under the unhampered workings of our American system of free enterprise. Without taint of monopoly, it is characteristically an American industry.

I have recalled its services in war, and I have pointed out its contributions in time of peace to the national wealth, the public revenues, and the satisfactions of living.

I have shown that it has developed through adherence to the theory of large production at the lowest possible prices.

I have shown that by integrating its activities all the way from the search for oil to the marketing of its multitude of products, it has developed the highest efficiency and passed on to the consuming public the full fruits of that efficiency.

I have shown that it has ceaselessly encouraged invention, improved processes, inspired research, and stimulated technologic advances.

I have told you of the leadership it has taken in the great movement for conservation of our natural resources, and of its continuing cooperation with every governmental policy for promotion of conservation.

Whatever this industry has accomplished has been achieved through the workings of the American system of free and competitive enterprise. Believing that the results have been good, I appeal to you gentlemen who are conducting this especial inquiry into the workings of our national economy, to stand firm in defense of that American system.

This industry's annual expenditure of millions in research and technologic improvement, and its record of constantly passing on to the consumer in lower prices and better products the resulting benefits, should dissipate any suspicion that monopoly exists here. If the industry's primary concern were big profits, and if these were insured because of arbitrary monopolistic control, then what possible reason

¹ Hearings on the "Iron and Steel Industry" are included in Hearings, Parts 18, 19, 20, 26, and 27.

could there be for vast expenditures in behalf of lower and ever-lowering prices? The answer is that the industry has been built upon, and rigorously adheres to, the sound doctrine of big volume and low prices.

To me, personally, any conspiracy of monopolistic domination would be a reprehensible betrayal of the American system of free enterprise, good sportsmanship, and equal opportunity. I know that my own company has never been partner to any conspiracy or monopoly. I have never discovered evidence that such a conspiracy existed; and I do not believe that within the period of the industry's modern history it ever has existed.

Acting Chairman REECE. At the opening of the afternoon's hearing it was suggested that unless some members of the committee felt otherwise, Mr. Cox would have opportunity at this point to ask any questions which he might have in mind, and you may do so, Mr. Cox, but if you will permit me to ask the witness if he has prepared and is ready to submit the tabulation requested by Judge Sumners this morning, if so it may be admitted to the record.¹

Mr. PEW. The figure requested was: By barges—973,445 tons, 219,780,902 ton-miles, and the cost per ton-mile was \$0.00259, which is a little over two-tenths of a cent per gallon.

THE SUN OIL CO.

Mr. Cox. Mr. Pew, I think it might be interesting to the members of the committee if you could tell us a little more about your company than you have so far. It is, is it not, one of the smaller of the large integrated companies, if I may put it that way?

Mr. PEW. Well, it is largely integrated and it is a small company.

Mr. Cox. I have in mind the fact of a chart which is contained in exhibit No. 1139, which was put in yesterday—chart 23, as a matter of fact. That exhibit, which is a comparison of total assets of 20, major oil companies, shows that your company is about fourteenth in the list. That would be about right?

Mr. PEW. Yes.

Mr. Cox. Can you tell us what the total assets of your company are as of today?

Mr. PEW. About \$139,000,000.

Mr. Cox. Is that all invested in the oil industry, or does part of it represent investment in the shipbuilding?

Mr. PEW. That includes the investment in the shipbuilding.

Mr. Cox. Could you give us any idea of how much of that figure could properly be allocated to the oil industry?

Mr. PEW. \$130,000,000.

Mr. Cox. With about 9 million in the shipbuilding. Your company differs also from some of the larger oil companies in that the stock is rather closely held, is it not?

Mr. PEW. The majority of the stock is owned by my family.

Mr. Cox. Can you tell us roughly what percentage of the outstanding stock is held by your family?

Mr. PEW. I submitted a statement.

Mr. Cox. If I may suggest to you, your statement shows about 80 percent. Would you accept that?

¹ See p. 7178, supra.

Mr. PEW. Yes; 64 percent is in our immediate family.

Mr. Cox. Is there another block held elsewhere?

Mr. PEW. There are distant relatives and employees and associates that bring it up perhaps to 80 percent, but for my family directly, I think, it is about 64 percent.

Mr. Cox. You said this morning, I think, in your statement that it was about 13 years ago that your company started marketing gasoline, is that right?

Mr. PEW. That is right.

Mr. Cox. And can you tell the committee what the capital assets of your company were at that time?

Mr. PEW. Fifty-eight millions of dollars, approximately.

Mr. Cox. That was the capital you had available at that time?

Mr. PEW. That was the total assets in the business.

Mr. Cox. That would include, of course, the shipyard.

Mr. PEW. The shipyard; yes.

OPPORTUNITIES FOR INDEPENDENT CONTENTED IN SPITE OF COMPETITIVE
ADVANTAGES HELD BY LARGER INTEGRATED COMPANIES

Mr. Cox. You spoke this morning about the competitive advantages which in your opinion are possessed by the larger integrated companies.

Mr. PEW. I think that the larger integrated companies possess a great many advantages. The very fact of that integration reduces their overhead, cuts down on all those multiplied organizations ordinarily necessary for the buying and selling of the product.

Mr. Cox. Would you say, totaling up the advantages on both sides of the picture, that the integrated companies generally have the balance of competitive advantage their way?

Mr. PEW. No; I would not say that.

Mr. Cox. You wouldn't go that far?

Mr. PEW. I would rather be inclined to think that the independent, as long as there is a large percentage of the industry operating under integrated conditions, has a little of the advantage.

Mr. Cox. You said this morning, I think, along the same line that the greater the share of the industry controlled by the larger integrated units, the greater competitive advantage you thought inhered in the position of the small nonintegrated companies.

Mr. PEW. I did.

Mr. Cox. Would there be any point at which that wouldn't be true? Suppose it got to the place where the integrated companies had 99 percent?

Mr. PEW. I would say definitely that would be the most prolific opportunity for an independent operator.

Mr. Cox. In other words, if they actually got 100 percent, then it would be even better for the small man.

Mr. PEW. Quite. Of course that is a hypothetical question.

Mr. Cox. Oh, I realize that, but you are definitely of the opinion that as that percent goes up the opportunities for the nonintegrated operator become greater, that is a fair statement of your opinion?

Mr. PEW. Quite.

Mr. Cox. Would you like to elaborate more on that and tell us why you think that is true?

Mr. PEW. I mentioned this morning that an independent operator can always choose his field of operation. If he be in the refining business, he is in a position to choose the qualities of crude that best suit his purposes. If he is in the marketing business, he can operate in those fields where the markets are highest, or where the operating conditions are best.

Dr. LUBIN. May I interrupt at that point? Could you clarify that idea for me? I just can't get what you mean when you say he can operate in any market where conditions are best. He can't just go in and open stations overnight. He has to build up his market, has he not?

Mr. PEW. He has to go into business the same as anybody else.

Dr. LUBIN. He is already in business. Here is a large independent marketing organization that covers an area, let's say of 500 miles, a radius of 100 miles, and he can't move all over the United States overnight. Just because the marketing situation in California happens to improve and the price had gone up, there isn't any reason why he could move from Washington to California overnight, is there?

Mr. PEW. Now we are talking about a marketer.

Dr. LUBIN. Retail market?

Mr. PEW. A marketer who buys from the refiner and sells to the retailer?

Dr. LUBIN. No; I am talking about a retailer who buys from the jobber or oil refiner and sells direct to the public.

Mr. PEW. You are talking about a man with a retail store?

Dr. LUBIN. Yes.

Mr. PEW. That is quite a different matter. We have, I assumed, been discussing this problem from the standpoint of the refiner and the marketer. I don't understand that we have yet touched on the position of the retailer.

Mr. Cox. I was thinking——

Mr. PEW (interposing). Because the oil industry has never been in the retail business, excepting only to a very small extent. They never had more than 15 percent of that business, and they only used that as a kind of a guidance and to set up standards for the retail trade to follow.

Mr. Cox. Let us go back to the refinery, which was the one unit I had in mind, Mr. Pew. We have to deal for the moment with hypothetical cases. Let us assume there is a refinery located in an oil field, say in the midcontinent field, midcontinent territory some place. Doesn't the fact that that man does not have access to a pipe line—suppose that he refines his gasoline there and is then faced with the problem of getting that gasoline to market. Doesn't the fact he doesn't have access to a gasoline pipe line put him to a competitive disadvantage which the larger company does not have?

Mr. PEW. There are very few gasoline pipe lines in the oil fields. Most of the pipe lines running from the oil fields are crude lines that carry the crude from the wells.

Mr. Cox. I am putting a case of a man with a refinery some place near an oil field and faced with a problem of getting his gasoline to a market which is distant.

Mr. PEW. I think there are too many hypothetical elements in that for me to give you a reply.

Mr. Cox. Well, you would agree that taking the elements as I have given them, the man is at a competitive disadvantage, wouldn't you?

Mr. PEW. You would have to describe them again. I don't even know that I would admit that.

Mr. Cox. To be sure of the question, we will ask that it be read.

(The reporter reads the question beginning above on line 9.)

Mr. PEW. I wouldn't know how to answer that question because I know of no case which would fit that specification.

Mr. Cox. Well, let us go back to the statement you made a little while ago about a man, an independent, being in position to move from one area of the industry to another as it appears to be more profitable. Suppose a refiner in that position, with a refining plant near an oil field, decided that he would be better off if he had his refinery closer to the market, and wished to consider building a refinery, say in Chicago or some city of that kind, a market center. Wouldn't an independent, as distinguished from an integrated company, be faced with the difficulty of obtaining as cheap a method of transportation as the larger competitors would have?

Mr. PEW. He could tender that oil to the pipe lines and pay the going rates and if he don't like those rates he can go to the Commission and demand that they be lowered.

Mr. Cox. How can you explain, then, the fact that so little oil seems to be carried on the crude pipe lines, except for the account of the companies which own them?

Mr. PEW. I think most all of the companies have arrangements for their own transportation facilities. A pipe line, after all, only represents a very small percentage of the investment in the oil industry. I told you this morning that there was about \$8,000,000,000 invested in this industry. The pipe-line investment amounts to about \$500,000,000. So, generally speaking, it is possible for those who require transportation of their own to work out some kind of an arrangement to get it.

Mr. Cox. It isn't always as cheap as the pipe-line transportation, is it? If they have to do it by rail it couldn't be as cheap?

Mr. PEW. I am speaking about the creation of a pipe line to handle their business.

Mr. Cox. You think, then, that as a matter of fact, as distinguished from these hypotheses we have been talking about, that the independent refiners have no complaint as far as access to the pipe lines is concerned?

Mr. PEW. I think substantially that the refiners in question can either get their oil through the pipe line under satisfactory conditions, or they can usually arrange to build their own lines or buy an interest in a line if necessary.

Mr. Cox. Of course, to build a line or buy a line may require a comparatively large amount of capital, may it not?

Mr. PEW. No; I tried to point out that the amount of capital invested in pipe lines is rather small as compared to the rest.

Mr. Cox. When you compare it with the total investment in the industry, but it is a comparatively large—

Mr. PEW (interposing). After all, if you are going into business you have to provide some capital.

Mr. Cox. Yes; but the question is how much, Mr. Pew. I assume from what you have said that you think a fairly substantial amount of capital would be required under those circumstances?

Mr. PEW. Well, I think that pipe-line transportation is within the reach of most people who desire to use it.

Mr. Cox. It isn't the investment required that is so excessive as to place the small refiner or competitor at a disadvantage?

Mr. PEW. I want to point out the investment is comparatively small. Of course every man can't build himself a store on Fifth Avenue. It takes some money to get into most any kind of a business.

Mr. Cox. And you think, also, that as far as the actual carriage of oil in pipe lines is concerned today, the independent refiners have no valid grounds for complaint, that they can get that oil carried in existing pipe lines if they want it?

Mr. PEW. As far as I know, in every instance.

Mr. Cox. Can you tell us by way of illustration how much oil is carried in your crude-oil pipe lines for the account of other companies?

Mr. PEW. I think that substantially all of the oil carried by our lines is our own oil. Now in some cases we carry oil for other people, but our procedure has rather been that of buying the oil in the field and putting it through the line and selling it at the other end.

Mr. Cox. You have title to it?

Mr. PEW. We have title to it. That is just a question of procedure, but after taking that point into consideration—I will give you the figure here, 84 percent is our own oil.

Mr. Cox. That is the crude oil or the gasoline?

Mr. PEW. Crude oil.

Mr. Cox. What about the gasoline pipe lines?

Mr. PEW. 91.2.

Mr. Cox. 91.2 of gasoline. Can you tell us how much of the balance that is carried for the account of others is carried for the account of other integrated companies as large or larger than your own? How much for smaller nonintegrated companies?

Mr. PEW. I think substantially all of it is carried by integrated companies, for integrated companies, which are substantially as large as our own.

Mr. Cox. In other words, as far as your pipe lines of both kinds are concerned, of crude oil and gasoline, you don't carry any oil for the small independent?

Mr. PEW. No, if our lines attract the other integrated companies, the services are available for any who want to make use of them, and under whatever conditions the Interstate Commerce Commission may see fit to impose.¹

Mr. Cox. So the situation is simply that these independents haven't tendered any oil to you?

Mr. PEW. I think the discussion is more or less academic, if I may be permitted to say so, because that branch of our industry is already under the control of the Government.

Mr. Cox. You mean the Interstate Commerce Commission?

Mr. PEW. The Interstate Commerce Commission, and if our rates are too high it is within their province to reduce them.

¹ Pipe lines which travel in interstate commerce, being common carriers, come within the purview of the I. C. C.

Mr. Cox. I am not questioning the rates, you understand, Mr. Pew. I am just trying to find out first whether or not any oil is tendered to you by independents; and second, if it isn't, I am mildly curious as to why it isn't. It may be there simply aren't any operating in the area through which your pipe lines run?

Mr. PEW. I am not familiar with that detail, but, generally speaking, most of these independent, so-called independent, refiners are located in the fields. They refine the oil in the oil fields and they ship it out by rail to that general district.

Mr. Cox. Do you have any idea as to why, as a historical matter, they have located, those people have located, near the field?

Mr. PEW. Well, we have one small refinery ourselves that is located in the field; it was located in the field at a time when the field was flush and we could buy oil very cheap: We stuck this little plant in there to run the oil and make a lot of money while the making was good. Most of the small refiners, I would say, were located there for similar reasons. When the flush of the field disappears, why the advantage of an oil refinery in that location very largely disappears.

Mr. Cox. I assume from what you said a moment ago that in your opinion there aren't many of the small independent refiners whose refineries are located near the market as distinguished from near the oil field. Is that correct?

Mr. PEW. There are a number of refiners that are located, small refiners, on the Gulf coast.

Mr. Cox. On the Gulf coast, but by and large I assume from your answer a moment ago that you said most of them were in the field?

Mr. PEW. Most of them located in the field.

Mr. Cox. If I should suggest to you that perhaps as a historical matter one reason why they have located there, rather than near market is because they haven't been able to get access to the market except by rail and other more expensive means of transportation, would you accept that suggestion?

Mr. PEW. No; I think I wouldn't accept that. I think the reasons that I have given are those that have actuated practically all of the refiners who have built plants.

Mr. Cox. Sometimes they have gone there when the field was flush and stayed after it ceased to be flush, haven't they?

Mr. PEW. Quite.

Mr. Cox. Why haven't they moved away to more advantageous locations when the time came? Is that because it hasn't occurred to them?

Mr. PEW. I think there are a good many questions. We have a little refinery there. I don't think, economically, we ought to stay, but we have stayed and the refinery is still operating.

Mr. Cox. Where are you taking the oil from that refinery?

Mr. PEW. Oh, we ship it to any customers we can find.

Mr. Cox. Physically, how does it go; through pipe line?

Mr. PEW. By tank car.

PIPE LINES

Mr. Cox. There was one thing I was going to ask you this morning, Mr. Pew, about that statement you read from Mr. Splawn.¹

¹ P. 7178, *supra*.

He says in there that a pipe line is a plant facility. Do you remember that?

Mr. PEW. Quite.

Mr. Cox. And I think at one point you described it as a plant facility and an assembly line.

On page 11 of the mimeographed copy of your statement:

* * * by leaving transport in its present relationship to the industry, that of a plant facility, an assembly line.

One thing that occurs to me might be of interest to the committee. As the law now stands the pipe line is a common carrier. That appears to be the situation with respect to the law. Doesn't it strike you as a little odd that a plant facility and assembly line should be a common carrier?

Mr. PEW. No; I don't get that reaction. We make use of our pipe lines as a plant facility, but when we undertake to build that line we assume certain obligations, we have a very definite responsibility, and that responsibility is to handle such oil for such people at such time as they may require it.

Mr. Cox. You think, then, that it can be both a plant facility and figuratively an assembly line and have certain public characteristics of common carriers at the same time?

Mr. PEW. With the additional responsibilities.

Mr. Cox. You see no reason for recommending or suggesting to the committee that the law in that respect should be changed so that a pipe line wouldn't be a common carrier?

Mr. PEW. Well, that is a hypothetical question, and I am afraid I would have to turn it over to my attorneys.

Mr. Cox. It is not a hypothetical question in the sense that it deals with a remedy which we might adopt, Mr. Pew. Do you think it would be better if they weren't a common carrier?

Mr. PEW. I think it is far better for these pipe-line companies to be under some measure of Government control. There are so many problems incident to their operation that it certainly does eliminate criticism if the responsibility for some of these things can be put right up to the door of the Government. I don't know, for instance, whether some of these rates are too high or too low, but I am quite satisfied to let the Interstate Commerce Commission decide what those rates ought to be.

Mr. Cox. Do you file rules and regulations as to tenders with the Interstate Commerce Commission for those pipe lines?

Mr. PEW. I am sorry to have to admit that the details of this entire transportation matter are left in the hands of Mr. Dow¹ to explain a very careful analysis of it, and I am sure he can give you a much clearer picture of it than I can.

Mr. Cox. I will withdraw that, and ask this question which will develop the fact that I am trying to get. Suppose I wanted to ship oil over your pipe lines. How much oil would I have to tender to you?

Mr. PEW. Fifty thousand barrels.

Mr. Cox. Fifty thousand barrels. Has that amount been 50,000 barrels for a considerable period of time?

Mr. PEW. I think it always was.

¹ Fayette Dow, whose testimony appears in Hearings, Part 15.

Mr. Cox. Never larger?

Mr. PEW. I don't think so. Of course, you know the purpose of that 50,000 barrels. The success of a pipe line depends on the ability to keep it full. The profit on a pipe line only comes from the top amount that goes through. If you run a pipe line at 50 percent capacity you inevitably would have a loss.

Mr. Cox. What is the breaking point?

Mr. PEW. I don't remember, but it is possibly around 70 percent. It will vary, but my guess is 70 percent, and it is that additional quantity that produces a profit.

Mr. BERQUIST. Mr. Pew, it was brought out this morning or yesterday that the major oil companies produce about 52.5 percent of the crude, or did in 1937, and refined about 83 percent of the crude, and at the same time it was brought out that about 89 percent of the crude oil trunk lines were controlled by these major companies. From your figures that you cited this morning, you pointed out the advantage of pipe-line transportation over rail transportation, first water having advantage over pipe line and pipe line over rail, and you rather indicated the importance of relative transportation costs in this industry and made it clear that there was a tremendous advantage of pipe line over rail transportation. I am wondering if you would admit that it is not a reasonably economic conclusion that the preponderant control of pipe-line transportation primarily accounts for the greater concentration in refining than in production, or if the advantages of pipe-line transportation were available to all persons as they are to the major companies, whether or not the proportions in refining might not be expected to be very much the same as the proportions in production.

Mr. PEW. Well, I think there are a number of—

Mr. BERQUIST. May I just complete that? Would you agree that through the means of the pipe line, control of pipe-line transportation and the significance of the pipe lines in transportation, as a result an increasing degree of concentration of the industry occurs at that point which follows that advantage?

Mr. PEW. No; on the contrary I think the exact opposite is true. I haven't examined those statistical figures. In fact, I am not a student of statistics, but I can recall that at the time of the dissolution of the old Standard Oil Co. they dominated the refining industry in this country. They had the refining and they had the marketing industry—

Mr. BERQUIST (interposing). And they also had peculiar transportation advantages at that time, didn't they?

Mr. PEW. They had the control of the transportation facilities, the refining facilities, and to some extent perhaps the marketing. Now, they were almost not at all engaged in production. It is quite evident that the trend must have been in the opposite direction because today that same group have a percentage interest in the refining and marketing which must be way below 50 percent.

Mr. BERQUIST. May I ask this question further. Was it a factor in the Standard Oil situation with respect to railroads in which they enjoyed rebates and all other advantages of transportation, and isn't that situation somewhat parallel today in that this advantage accrues to those who own the pipe lines, call them common carriers if you will; and therefore as a result following the function of transporta-

tion, these companies dominate to a very high degree that segment of the industry known as refining; and also that that segment of the industry controlled by this group has been increasing in recent years, not startlingly from year to year, but, we will say, in the magnitude of 10 or 12 percent in the past 10 years—gradually increasing?

Mr. PEW. In the first place, I am not sure that your statistics are right.

Mr. BERQUIST. We will have available the basic facts from which I quote in pamphlet form. Unfortunately they are not available here.

Mr. PEW. I think that Mr. Swensrud and Dr. Wilson¹ have some figures on that too, but as to your other question, I think there is an entirely different proposition from that which existed in the early days of the old Standard Oil Co. In the first place, you speak about 20 companies. I have heard a lot of talk here today about 20 companies. It is far more than 20 companies who operate under this general plan. There is the keenest kind of competition between those companies. Now, such a condition as you describe could not possibly exist unless those companies conspired together against the interests of these independents.

Mr. BERQUIST. I am not suggesting that, Mr. Pew. But you spoke a while ago that it was perfectly feasible for an independent to go in one of the aspects of the industry and he had many advantages in going into one branch of the industry. What I am wondering is, whether or not if he is going into the refining business he is almost forced also to go into oil transportation and possibly into production as well, so that he cannot advantageously go into the refining branch by itself.

Mr. PEW. I think Dr. Wilson has a lot of statistical information that he can develop in answering that question which, unfortunately, I did not prepare myself to answer. I still hold that the independent refiner can still go into the business and if he be an expert refiner, as anyone must be to do refining today, he has just as great an opportunity as have the integrated companies.

Mr. BERQUIST. Of course, the refineries that have failed in recent years have been largely the independent refineries. I don't claim that they were all efficient or all wisely located, but certainly one of the factors against them was the matter of transportation of their products to the market, wouldn't you say?

Mr. PEW. No; I think that the influences in refining have been quite of a different nature. I tried to point out this morning the tremendous technological advances that have taken place in refining, and when I surveyed the statistics here a few weeks ago and found that there were some 431 refineries operating in this country today out of some 560 that were registered, I was surprised that there hadn't been a much greater mortality.

Mr. Cox. Talking about the technological development——

Mr. PEW. Yes.

POSSIBLE ECONOMIC CONSEQUENCES OF PRORATION

Mr. Cox. To speak again for a moment of the refiner, when he makes his product, gasoline, and sells it, I ask you to assume that he

¹ Testimony of these gentlemen appears in Hearings, Part 15.

sells that gasoline on a competitive market which is free from any artificial limits, restraints, or interferences—I suppose you would agree to indulge in that assumption for a moment. I ask you then to consider the market on which he buys. If he buys in an oil field which is subject to proration, would you say that he was buying on a market which was free from artificial restraints?

Mr. PEW. Now you open up an entirely different field, one having to do with proration and conservation. I don't believe I could answer that question without a full discussion of the whole proration and conservation program.

Mr. Cox. You don't even feel that you are in a position to advance an opinion as to whether or not, quite apart from the merits of proration, the effect of proration is to interject an artificial element into the crude-oil market? I am not saying it is a bad thing, Mr. Pew; I am asking you if in a market where there is proration, you don't have something that isn't provided for by the ordinary working of the forces of supply and demand.

Mr. PEW. You mean by that that the man hasn't the opportunity of going in and dickering with a certain producer to get a somewhat lower price than that which the other producer is receiving for the orders?

Mr. Cox. I mean, too, that the supply is curtailed by governmental interference.

Mr. PEW. That again all depends on your viewpoint. I would like to see the industry operate on the basis, absolutely on the basis of supply and demand, but I would also like to see the industry operate in accordance with the best conservation practices; but that presupposes that the reserves in this country are sufficiently large to permit of the application of those best conservation principles and at the same time to produce sufficient oil to meet the country's needs.

Mr. Cox. I don't want you to misunderstand me, Mr. Pew. I am not attacking the idea of conservation nor am I attacking the proration laws, but I am simply suggesting to you that an independent refiner who buys oil in the market subject to proration and sells oil from his refinery in a competitive market, is buying in a regulated market and selling in a competitive market, and that that fact may place him at a disadvantage as opposed to a man who operates in both markets and doesn't have to buy his crude oil.

Mr. PEW. I don't admit that the market for crude oil is regulated. I do admit that the practices of the various State commissions in their proration activities do to a certain extent influence the determination of the market, but I don't believe that it controls it.

Mr. Cox. Well, whether it controls it or not, at least it has some effect upon it, does it not?

Mr. PEW. Well, if that same man were buying wheat in the wheat pit, he would pay the same price for it as every other buyer.

Mr. Cox. I don't question that at all.

Mr. PEW. I don't quite get the point.

Mr. Cox. I am coming to the next point, and perhaps it will be clear then. If you were an integrated operator and not under the necessity of buying any crude oil from anyone except insofar as your production isn't adequate to meet the needs of your refinery, you are not buying on this market which is affected by governmental regulation, whether controlled or not we will pass by for the time being. The small inde-

pendent refiner, however, is buying on that market and selling on a competitive market, I suggest to you that that puts him at a disadvantage.

Mr. PEW. Well, you presuppose that there is a profit in the producing of oil.

Mr. Cox. Well, isn't there a profit in the producing of oil? A great many people are going to be disillusioned, I am afraid, if there isn't.

Mr. PEW. Well, I hate to admit it, but we have been in the red a great many years.

Mr. Cox. That is one branch of your integrated operation that isn't profitable; is that right, Mr. Pew?

Mr. PEW. Subject to my qualifications.

Mr. Cox. Well, we will take it all, subject to your qualifications.

Quite apart from whether it is profitable or not, isn't it true that a man who has his own source of supply, as distinguished from the man who has to buy, has an advantage if the man who buys has to buy in a controlled or artificially affected market and sell in a competitive market?

Mr. PEW. I think not. There is nothing that would give me so much satisfaction as to be able to buy all the crude oil that our company refines.

Mr. Cox. Would you be willing to buy all of it even though—

Mr. PEW (interposing). Every gallon of it.

Mr. Cox. Your competitors weren't buying it?

Mr. PEW. Yes.

Mr. Cox. And even though you had to buy that on a controlled and regulated market?

Mr. PEW. Even though I have to buy it on the market conducted under such conditions as those which now obtain.

Mr. Cox. You wouldn't care—or I suppose you would care—how high the price of crude oil went under those circumstances?

Mr. PEW. Yes; I am very keen on getting the costs of crude oil down just as low as possible.

Mr. Cox. That is perhaps why you think there isn't any profit in it.

Mr. PEW. So I can get it through our plant, get our gasoline as cheaply as possible, so that we can sell it to the public and sell more of it. That has been the aim of our organization from the beginning.

Mr. Cox. Mr. Pew, have you ever heard it suggested that large units in the industry sometimes arrange what is known as a "squeeze" in order to affect the competitive conditions of the small refiner?

Mr. PEW. No.

Mr. Cox. That they put up the price of crude oil and depress the price of gasoline at the refinery door, cut down the margin on which those men can operate?

Mr. PEW. No; I can tell you that there isn't any truth in that, or at least I have never been in on such a squeeze—

Mr. Cox (interposing). I am not asking you that.

Mr. PEW. And I don't believe such a 'squeeze' could be perpetrated unless I was in on it. [Laughter.]

Mr. Cox. You think you would be bound to be in on it?

Mr. PEW. Quite.

Mr. Cox. You have heard that claim made?

Mr. PEW. No; I haven't even heard it made.

Mr. Cox. You haven't even heard that suggestion made that that sort of thing is done?

Mr. PEW. No.

Mr. Cox. Have you ever heard that the price of crude oil is kept high in certain fields in order to impair the competitive position of the independent refiners?

Mr. PEW. No. I don't know whether I have ever heard that or not, but I don't know of the existence of such a condition.

Mr. Cox. Would you have been in on that, too, if it had been done?

Mr. PEW. Well, I might have been.

CONTRACTUAL RELATIONSHIP BETWEEN INTEGRATED COMPANIES AND
RETAIL MARKETERS

Mr. Cox. Let's leave refining for a moment now and consider the relations that exist between the refiner on the marketing side and the retail outlets. What kind of contractual relations do you have with retail outlets? I understood from what you said a moment ago that you no longer own any stations; is that true?

Mr. PEW. No; we no longer operate any stations.

Mr. Cox. I see; you own the station itself but you provide for its operation under some kind of contractual relationship?

Mr. PEW. Right.

Mr. Cox. What is the nature of that contractual relationship?

Mr. PEW. It is just an ordinary lease.

Mr. Cox. And do you customarily as a part of that lease provide that the lessee shall not handle any products except yours?

Mr. PEW. Not in connection with the lease; no. We have another agreement that we make with all of our dealers.

Mr. Cox. What is the nature of that agreement, Mr. Pew? Can you tell us about that?

Mr. PEW. We just make a sales contract. We have a sales contract with all of our dealers, the same kind of contract as that which obtains with those dealers who have a lease on our property.

Mr. Cox. And what is the nature of that contract so far as it relates to the handling of goods besides your own?

Mr. PEW. Well, I have a copy of it.

Mr. Cox. Can you just tell us generally? Do you provide—

Mr. PEW (interposing). No; I don't think I can. If I had known you wanted me to go into this, I would have been happy to have read up on it. What feature of this would you like?

Mr. Cox. The thing I am interested in are the provisions, if any, by which the lessee or your agents or dealers, as the case may be, agree to sell only your products and no products produced by any other company.

Mr. PEW. There is no such provision.

Mr. Cox. There is no such provision. So that all of your lessees and all of your agents are free to sell gasoline of your competitors; is that correct?

Mr. PEW. That is correct.

Mr. Cox. And they are also free to sell other products, such as oil?

Mr. PEW. Yes.

Mr. Cox. And they are also free to sell any kind of automobile accessories of any kind that they would like to sell?

Mr. PEW. Quite true.

Mr. Cox. Have you ever received any complaints from people in the industry that the representatives of your company have attempted to persuade, or in some cases have ordered, the operators of filling stations to discontinue the goods of competitors?

Mr. PEW. Yes; I have heard complaints of that kind. I never was quite able to understand just what their viewpoint was. It always seemed to me as if Mr. Chrysler were to appear before this committee and object to the fact that the Ford dealers wouldn't put his cars in their exhibition rooms and charge that there was something wrong with the Ford dealers. At the same time, we do not restrict our dealers from the selling of products of other manufacturers of oil.

Mr. Cox. I make no suggestion at this point that there is anything improper in such practices or anything of the sort, but the reason I raise the question is because it has come to my attention that complaints of that kind have been made. Now whether they have been made to you or not, I don't know, but they have been made to different Government agencies. I am not assuming at this moment that the activities which are complained of are carried on under the direction or with the approval of the responsible officers of the company, but I wanted to find out what your policy was with respect to that sort of thing.

Mr. PEW. Our policy is that these dealers may sell without any duress on our part, such other lubricating oils as they may see fit to sell, manufactured by other companies.

Mr. Cox. And such gasoline?

Mr. PEW. Well, I don't think the problem has ever come up, but it would also apply to gasoline.

Mr. Cox. Do you have any idea how many of your lessees or agents in fact sell gasoline produced by other companies?

Mr. PEW. I should think very few.

Mr. Cox. Do you have any idea how many of them sell lubricating oil that is produced by other manufacturers?

Mr. PEW. If they sold other qualities of gasoline, then they would no longer be 100 percent dealers and they would be charged a half-cent more for that gasoline.

Mr. Cox. You have that half-cent margin to encourage the dealer to sell only your products?

Mr. PEW. We have it to cover our additional expenses.

Mr. Cox. I am not sure that I understand that. Will you explain what additional expenses you mean?

Mr. PEW. When we do business with what we call a split dealer, a dealer who handles one or more qualities of gasoline, our deliveries are much less, naturally, because the other fellow takes a part of his business, and because of the reduced amount of business that he does with us, our costs go up. We have to send a truck around whether he takes 200 or 500 gallons, and a very careful compilation of all of our costs have indicated that the split dealer costs us to handle somewhere in the neighborhood of six-tenths of 1 cent a gallon more.

Mr. Cox. That is an average. I suppose there might be split dealers who would take as much as a 100-percent dealer, depending upon location and general volume of his sales. You figured on an

average it costs you a half a cent more to do that, is there a similar margin so far as lubricating oil is concerned?

Mr. PEW. No; they are quite free to buy lubricating oil and I suppose 70 percent of them do buy outside lubricating oils.

Mr. SNYDER. Do they display that lubricating oil for sale to the public?

Mr. PEW. Yes; they do.

Mr. SNYDER. They don't keep it in hiding so the public can't see it?

Mr. PEW. No; it is there; just as Mr. Chrysler might display his Chrysler car in a Ford showroom.¹

Mr. SNYDER. But it is controlled by the franchise arrangement Mr. Ford has with his dealer?

Mr. PEW. I don't know about that.

Mr. SNYDER. Do you have a franchise arrangement with your lessee?

Mr. PEW. I don't suppose so; no.

Mr. Cox. Could you tell us, while we are reviewing that point, the terms on which your leases may be terminated, Mr. Pew?

Mr. PEW (reading from Sun Oil Co. lease) :

If the Lessee shall abandon the premises, become bankrupt or insolvent, or if any receivership or assignment for the benefit of creditors be made, then this Lease shall immediately terminate. If Lessee shall fail to perform or violate any covenant or condition herein contained, or if an attachment, execution, or like process shall be made or issued against Lessee, then this Lease shall absolutely determine at the option of Company.

If this Lease shall be cancelled or terminated prior to the end of the term hereof, or if Lessee shall fail to vacate the demised premises at the end of the term thereof, any attorney may immediately appear for the Lessee in an amicable action of ejectment, to be brought by the Company in any competent court for the recovery of the demised premises and damages for the detention thereof, and therein confess judgment against the Lessee, for which this agreement (or a true copy thereof) shall be a sufficient warrant; and the Company may issue thereon all necessary writs or process for recovering possession of said premises.

Mr. Cox. That is enough for that. I wanted to find out whether or not you had any general right of termination apart from the general conditions just stated in there.

Mr. PEW. Usually for a year.

Mr. Cox. Usually for a year. There is no general right of cancellation on a certain number of days' notice?

Mr. PEW. No.

Mr. Cox. Have you ever used a lease of that kind at all, with a general clause giving you the right to cancel the lease on a certain number of days' notice?

Mr. PEW. I suspect we did in the early days, but I can't be too sure about it.

Mr. Cox. You haven't, you think, used such a lease recently.

Mr. PEW. No.

Mr. SNYDER. How long ago since you adopted this lease?

Mr. PEW. I don't know.

Mr. SNYDER. Have you had leases that had exclusive selling clauses in them?

Mr. PEW. I don't know. I am told that prior to 1933, not in the form of the lease but in the sales agreement, we had an exclusive provision.

¹ See testimony on this subject on October 7, 1939, Hearings, Part 15; and on October 10, 1939, Hearings, Part 16.

Dr. LUBIN. In that same connection, Mr. Pew, what is meant in your contracts by an undivided retailer price posted at your plant?

Mr. PEW. The undivided account is an account which buys all of its gasoline from us.

Dr. LUBIN. What is the undivided price at the present moment at market?

Mr. PEW. I don't know.

Dr. LUBIN. Do you know what the divided price is?

Mr. PEW. The divided is half a cent higher than the undivided.

Dr. LUBIN. In other words the dealer who sells your products only pays half a cent less per gallon to you than the dealer who sells your products plus something else?

Mr. PEW. Right. I was trying to explain, sir, that the cost of our handling the divided accounts more than made up that half cent differential.

Dr. LUBIN. I can't understand. Why is that?

Mr. PEW. Because of the lesser amounts involved. We have to make so many more deliveries with our truck.

Dr. LUBIN. Let's assume that the man has your gas, has Sunoco and he has X gasoline. It doesn't necessarily follow that he is selling less Sunoco because he also sells X, does it?

Mr. PEW. No; but the statistics will convince you to the contrary. They do sell less. Our deliveries are very much less, and when we add up all the deliveries and figure up all our costs we arrive at a little in excess of a half cent in the cost of doing that kind of business.

Mr. Cox. This is subject to the usual qualifications about cost?

Mr. PEW. No. Those are definite. Now, when we put the qualification on top of that, it would raise it.

Mr. BERGE. That difference in cost of handling accounts that you speak of seems to be really in the nature of a quantity discount. Don't you experience the same differences in cost between handling the small accounts and the large accounts of your exclusive dealers? Isn't that a difference really due to quantity rather than to the way in which they do business?

Mr. PEW. Possibly largely due to quantity.

Mr. BERGE. Then do you make a difference in price to your small exclusive dealer and your large exclusive dealer of a half cent?

Mr. PEW. No; we put in general classes.

Mr. BERGE. Then isn't the real explanation of the difference the fact that one is an exclusive dealer and the other is not, and that there is a policy to favor the exclusive dealer?

Mr. PEW. The reason is that the general cost of doing business with the nonexclusive dealer is something over a half a cent a gallon, generally.

Mr. BERGE. You have given no explanation of that difference, other than the fact that the nonexclusive dealer may sell less of your gas.

Mr. PEW. Quite right, but we have to have some basis for—some groupings. We have to decide on something. Now, the industry has based it—they have differentiated there as between the 100-percent account and the split account.

Mr. Cox. Why don't you do it on a flat quantity basis, just give everyone who takes so much the discount.

Mr. PEW. That would be just another way of handling that; that would be equally as satisfactory to me, but there are certain trade

practices that have grown up over the years and that is one of those practices which obtain in our industry.

Mr. COX. Just a matter of habit?

Mr. PEW. Yes; and I think the Federal Trade Commission are looking into this and similar groupings, and I think you will find that they have held that such a grouping is about as good a way as a matter of this kind can be worked out.

Mr. COX. Don't you feel, Mr. Pew, it is an advantage to you, quite apart from this difference in cost, to have the dealer handling only your gasoline?

Mr. PEW. Very definitely.

Mr. COX. And isn't that advantage one of the reasons, really, why you give him a discount in addition to the difference in cost?

Mr. PEW. No; I think not. If we worked that out and gave consideration to that feature we would have to raise that half-cent and make it a larger figure.

Mr. COX. I am not sure I followed you on that. You mean that if you are going to do it for the purpose of getting exclusive arrangements you would have to increase the margin?

Mr. PEW. No; what I mean is that if we were going to give consideration to the value of having a dealer handling our business exclusively, and we will say we calculate that difference as being worth a tenth of a cent a gallon to us, then we would have to add that tenth of a cent to the other five- or six-tenths and establish a new differential.

Mr. COX. You wouldn't have to do that unless you had to do it to get exclusive dealers, would you?

Mr. PEW. Well, we don't propose to do it. Our costs are substantially taken care of under the present conditions. We couldn't give a half-cent a gallon—we couldn't have all split accounts and give up that half-cent a gallon; the entire profit of all of the indicated operations in our business over a period of years has not exceeded a half a cent a gallon. Now, when a large percentage of our business comes along and costs us a half a cent a gallon more to do it, we just naturally either have to take that half-cent off of those fellows, or quit selling them, or go out of business.

Dr. LUBIN. The thing that I just can't understand is, I understood you to say a few minutes ago that the number of split accounts is relatively small.

Mr. PEW. I don't recall saying that.

Dr. LUBIN. I may have misunderstood you. I just understood you to say that, in terms of actual number of accounts, the split accounts are not as important as the accounts that carry your product only.

Mr. PEW. No; I beg your pardon; I didn't mean to say that. My recollection is that the number of our split accounts are about 40 percent and that the volume that we do is about 20 percent.

Dr. LUBIN. Despite the fact that a split account may do more gallonage than an account that carries only your own product, they still must pay more for it, half-cent more per gallon?

Mr. PEW. That is the grouping.

Dr. LUBIN. So that it is cheaper in some of those instances to make deliveries to the split account than it is to the account that carried your product only, and yet you charge them more for it?

Mr. PEW. That is right.

Mr. SNYDER. Approximately how many service stations does the company own and lease out?

Mr. PEW. We own 680 stations.

Mr. SNYDER. And how many are leased out?

Mr. PEW. Substantially all of them.

Mr. SNYDER. And in all of those stations are your products sold exclusively, or just gasoline?

Mr. PEW. I would say that in all cases our gasoline was sold by those stations exclusively.

Mr. SNYDER. On lubricating oils there may be more than your brand?

Mr. PEW. I think our brand is sold in all of them, but other brands are sold in most of them.

Mr. SNYDER. At those 680 filling stations is any other brand of gasoline sold?

Mr. PEW. I don't think so.

Mr. SNYDER. Is there an arrangement which says all dealers shall not go to a competitor?

Mr. PEW. No; I don't think so.

Mr. SNYDER. What controls that situation?

Mr. PEW. Controls? I don't get your point.

Mr. SNYDER. How are you able to keep all of these lessee dealers selling your gasoline? Are they all satisfied?

Mr. PEW. As far as I know.

Mr. SNYDER. Do you have—

Mr. PEW (interposing). They wouldn't have made an agreement with us to lease the station if they weren't satisfied.

Mr. SNYDER. Do you have any arrangements with them in regard to the resale price which they sell at?

Mr. PEW. No.

Mr. SNYDER. How do they get the information of what price to charge?

Mr. PEW. They don't get it from us.

Mr. SNYDER. How familiar are you with the marketing end of your business?

Mr. PEW. Well, after all, I am only the president of the company. I don't know very much about the details of all of these departments.

Mr. SNYDER. Does your official in charge of marketing discuss these matters with you frequently?

Mr. PEW. Quite.

Mr. SNYDER. Have you heard of a situation where your dealers were complaining to your company that your salesmen were dictating the price, and that price was below the prevailing price, and they would go out of business if they were not permitted to sell at a higher price?

Mr. PEW. No.

Mr. SNYDER. Have you ever heard of the situation at Baltimore last summer? I suppose Mr. Eckert¹ would have all that information.

Mr. PEW. Certainly.

Mr. SNYDER. You would rely on him for that information?

Mr. PEW. Yes.

¹ B. Eckert, vice president, Sun Oil Co

Mr. Cox. Is it the policy of your company to have any voice at all in determining the retail price at which the gasoline should be sold?

Mr. PEW. None whatever.

Mr. Cox. Does Mr. Eckert understand that?

Mr. PEW. Quite.

Mr. Cox. And as far as you know those instructions have been given to Mr. Eckert?

Mr. PEW. I am perfectly sure those instructions have gone out to everybody.

Mr. Cox. Anyone who disregards that in your organization is acting in disregard of express orders to the contrary?

Mr. PEW. And I am sure that nobody did disregard them.

Mr. Cox. If they did—

Mr. SNYDER (interposing). When you lease out a station, Mr. Pew, do you assign a certain gallonage for that particular station?

Mr. PEW. In the sales contract there is a gallonage agreed to.

Mr. SNYDER. When the operators' gallonage falls down, what steps do you take to raise it?

Mr. PEW. Well, I can't tell you that. I don't suppose that we take—it is suggested we make an attempt to ascertain what the conditions are. If the operator has been doing a good job, nothing is done about it.

Mr. Cox. Do you cancel the lease if the gallonage falls below that?

Mr. PEW. The lease is quite distinct from the sales agreement. We can cancel the sales agreement if they fall down.

Mr. Cox. Well, now, I would like to be clear as to what the situation is then. You cancel the sales agreement. Does that mean a man ceases to be able to buy your products?

Mr. PEW. Quite.

Mr. Cox. But the lease obtains so that he has the filling station, but he has to get gasoline and the other things he sells from someone else?

(Mr. Pew nodding head "Yes.")

Dr. LUBIN. What is the usual length of one of those leases?

Mr. PEW. A year.

Dr. LUBIN. So at the end of a year he is out of business, as far as that spot is concerned?

Mr. PEW. Quite.

Dr. LUBIN. You mentioned a minute ago that you had 680 stations that you have leased out. Has there been any time in the history of the company when it operated its own stations?

Mr. PEW. Oh, yes.

Dr. LUBIN. Did you operate all 680?

Mr. PEW. Whatever we had at that time.

Dr. LUBIN. Have you any idea what the pay roll of your stations was at that time?

Mr. PEW. No. I would be glad to get that information and file it with the committee.¹

¹ Mr. Pew supplied the information during his testimony the following day. The data were marked "Exhibit No. 1173" and are included in the appendix on p. 7512.

Dr. LUBIN. I would be very much interested in having it, particularly in view of the statement as to the relationship between the leasing procedure and the Social Security Act. It has appeared to some people in the industry that 5 percent on the distribution of pay roll was a terribly high burden to bear, and that in terms of the profits of the retail market if that 5 percent could be shifted from the shoulders of the company or eliminated, it would have a different bearing on the profit situation of the retailer as a whole.

The fact is that when the law first went into effect there was 1 percent in most States for unemployment compensation and 1 percent I think for old age, with a planned increase so that eventually it would get to 4 or 5 percent, I think by 1942, according to the rate.

Mr. PEW. That 5 percent was a very small item as compared with the other costs. I can assure you that so far as our company was concerned, it received very little consideration.

Dr. LUBIN. I should think 5 percent of a pay roll for 680 stations might have been a rather significant amount of money.

Mr. PEW. Yes; but we are speaking now in relative terms. The cost per station of that 5 percent or a fraction of a cent per gallon was very small.

Dr. LUBIN. I will agree to that, but still if one had a \$5,000,000 pay roll, \$250,000 is a lot of money if you add that amount to that pay roll.

Mr. PEW. I think you will find that most corporations think about these things in relative terms. I can assure you that it was not a factor in our determinations as to the policy we should follow in disposing of our stations.

Dr. LUBIN. Do you know whether it was true of other companies?

Mr. PEW. No; I can't vouch for other companies.

Mr. Cox. I gather from what you said just now to Dr. Lubin, and what you said this morning, Mr. Pew, that it was the competitive situation which existed in the retail field rather than the Social Security taxes and chain-store taxes that in your opinion was the decisive factor in causing many of the large refining companies to get out of that field, at least so far as active operation was concerned?

Mr. PEW. That seems to be the consensus of opinion. Of course, that really wasn't the case with our company.

Mr. Cox. Why did your company do it?

Mr. PEW. Well, our company found its filling-station operations to be quite profitable. Back in 1933 our earnings, subject to qualifications, ran from 10 to 15 percent, but you remember the N. R. A. went into effect in 1933, and under the N. R. A. there was a certain price control of filling stations. The dealer of the so-called major companies couldn't give away his margin. His prices had to be posted. Then there developed a certain number of dealers who found they could violate the provisions of the N. R. A., and they did, and they took a lot of business away from the dealers who were living up to the law. The result was that it took so much business away from the honest dealer that it robbed the honest dealer of his margin of profit, because his gallonage was reduced. That seems to be the real reason for the demoralization that took place in the marketing in the retail department of the industry in the section where we do business. While in 1934 our margin of profit went down almost to nothing, in '35 and '36 we suffered heavy

losses. I think it was in '36 that we finally disposed of our stations.

Mr. Cox. Of course, N. R. A. wasn't in effect after the 25th of May 1935, so that that situation must have been continued by some other factor.

Mr. Pew. Yes; well, it caught them—this trick of what they call "under canopy cutting." They had learned that by cutting their price they could greatly increase their business. That is just my opinion.

Mr. Cox. But it brings me back to a suggestion that I was about to make to you to see whether you cared to express an opinion on it. That appears to have been a case, does it not, where the larger integrated operation was a little too rigid to compete successfully with smaller units in the retail market?

Mr. Pew. I would say yes; but I would like to qualify that by saying that the integrated units at that time as well as many of the other units found themselves in the difficulty that they were in largely because of the fact that their filling stations were not themselves integrated—integrated as regards the handling of supplies other than gasoline.

Mr. Cox. Would you say that was a substantial factor in the situation?

Mr. Pew. I think in the later days it was, yes; and today I think it is definitely the controlling factor.

Mr. Cox. Even controlling despite all considerations of the price at which gasoline may be sold?

Mr. Pew. Well, an integrated station, if I may call it such, let's call it a horizontal integrated station, will produce under present conditions on business outside of that of their gasoline, a profit equal to 5.2 cents a gallon on the gasoline sold, which is almost twice as much profit as they can get out of the sale of the gasoline itself. So that in such an integrated station the concern of the operator is not so much with how much profit he can get out of his gasoline but how many cars he can bring into his plant and how much of this other business he can get. He can use the gasoline—

Mr. Cox (interposing). As a loss leader.

Mr. Pew. As a loss leader. Now I have here a chart which you might be interested in, a chart that we have distributed to our dealers. It shows that per gallon of gasoline sold if they get their share of this other business it will bring them in a profit of 5.2 cents a gallon on the gasoline sold.

Mr. Cox. Do you furnish them with these other accessories?

Mr. Pew. No.

Mr. Cox. They buy those themselves? You don't furnish anything of that sort?

Mr. Pew. We are greatly concerned that our dealers should be happy. The only way they can be happy and contented is when they make a profit. They are our front. We have to keep those dealers in business. There is nothing that gives me so much concern as when these dealers aren't making a fair profit.

Mr. Cox. That brings me to another question that I want to ask you again about the small independent refiner. We have talked about his position with respect to various phases in the industry. Is it your considered judgment that in the struggle, if I may use that

word, for dealer outlets, he stands on the same footing as the larger integrated company?

Mr. PEW. Yes.

Mr. Cox. You think he suffers under no competitive disadvantage?

Mr. PEW. No.

Mr. Cox. You never heard any small manufacturer of petroleum products, for example, people who manufacture lubricating oil, complain of their outlets slowly being taken away from them by the larger integrated company?

Mr. PEW. I have heard some complaints on the part of companies from time to time who were in the sole business of supplying lubricating oil, but it is my very definite belief, though I haven't got the facts, that those companies have increased their business in the last few years. The trend has been in exactly the opposite direction.

Mr. Cox. Those complaints in your opinion are unfounded?

Mr. PEW. That is my opinion.

Mr. Cox. That their outlets, far from decreasing, have been increasing?

Mr. PEW. I would say so.

Mr. Cox. Have any of those complaints been made to you personally, Mr. Pew?

Mr. PEW. I have heard very little about it. I have never had any complaint personally made to me; no.

Acting Chairman REECE. May I inquire, Mr. Cox, how much time you think you may need to finish with the witness?

Mr. Cox. It is a little hard for me to tell. I still have a substantial number of questions, and there may be some by the committee.

Acting Chairman REECE. You can be here tomorrow without great inconvenience?

Mr. PEW. Certainly.

Acting Chairman REECE. It is now 4:30. If we are not able to finish this evening it would be my judgment that we might recess very soon. The committee will stand in recess until 10:30 tomorrow morning.

(Whereupon at 4:30 p. m. the committee recessed until 10:30 a. m., Wednesday, September 27, 1939.)

INVESTIGATION OF CONCENTRATION OF ECONOMIC POWER

WEDNESDAY, SEPTEMBER, 27, 1939

UNITED STATES SENATE,
TEMPORARY NATIONAL ECONOMIC COMMITTEE,
Washington, D. C.

The committee met at 10:45 a. m., pursuant to adjournment on Tuesday, September 26, 1939, in the Caucus Room, Senate Office Building, Representative B. Carroll Reece presiding.

Present: Representatives Reece (acting chairman) and Williams; Messrs. Berge, Lubin, O'Connell, and Brackett.

Present also: Clarence Avildsen, representing Department of Commerce; Willis Ballinger, representing Federal Trade Commission; Quinn Shaughnessy, representing Securities and Exchange Commission; Hugh Cox, W. B. Watson Snyder, F. E. Berquist, and Christopher Del Sesto, Special Assistants to the Attorney General; Roy C. Cook and Leo Finn, Department of Justice.

TESTIMONY OF J. HOWARD PEW, PRESIDENT, SUN OIL CO., PHILADELPHIA, PA.—Resumed

Acting Chairman REECE. The committee will please come to order. You may resume, Mr. Pew, if you will, please. Are you ready to proceed, Mr. Cox?

CRACKING PROCESS PATENTS

Mr. Cox. Yes, Mr. Pew; I think yesterday you testified that at one point in your company's development you found that in connection with cracking processes it would be too expensive for you to operate under the patents which were then outstanding, covering certain processes. I should like to develop that a little bit. Can you tell us exactly why that was more expensive?

Mr. PEW. I think my reference to that particular development at that time was not to be taken as a criticism of the patent situation; we simply felt that we could develop our own process; we felt that we could develop a better process; and if we did, we would pay no royalties. That was the course we followed.

Mr. Cox. When you did make the reference yesterday to the additional expense involved in using these patents, was that expense the royalty payment?

Mr. PEW. The royalty payments.

Mr. Cox. Who owned those patents? Will you tell us that?

Mr. PEW. I don't think that I am equipped with the information as to the various companies that were licensing the rights to use their particular cracking processes. There were a number.

Mr. Cox. Well, if I suggest to you that the patents were owned and controlled by major integrated companies, would you accept that suggestion?

Mr. PEW. I know that the major integrated companies were interested in many of the patents. Dr. Wilson is intimately familiar with the whole patent structure of this industry, and he is prepared to give you any information on that point which you may desire.

Mr. Cox. You don't feel that you are in a position now even to comment on the suggestion I made that those patents were owned and controlled by the major companies?

Mr. PEW. I don't know. I know at the time that we were in negotiation with at least one or perhaps two different inventors who had nothing whatever to do with the major companies.

Mr. Cox. Well, I am referring now to these patents under which you would have had to pay royalties to operators.

Mr. PEW. We had to pay royalties under many.

Mr. Cox. Were any of the patents under which you had to pay royalties owned by the major companies? Do you remember?

Mr. PEW. I think they owned a great many of them; yes.

Mr. Cox. And of course if you had had to pay royalties on those patents you would have been paying royalties to your competitors, would you not?

Mr. PEW. Certainly.

Mr. Cox. Now can you tell us in a general way how much money it was necessary for you to spend to develop your own cracking process, Mr. Pew?

Mr. PEW. Well, during the years we have spent a great many millions of dollars in the development of cracking processes.

Mr. Cox. Then, would it be accurate to say that a small independent refiner wished to take advantage of the processes which we have been discussing he would be faced with the alternative of paying royalties to his larger competitors or of spending millions of dollars to develop his own cracking process?

Mr. PEW. I think that is quite probably true, but in connection with that I think I should point out that the cost of developing these processes is probably greater than all the royalties that have ever been obtained from them. I suggest that as something that you gentlemen might look into.¹ I don't know, but I think that is probably true.

Mr. Cox. Assuming that that is true, as it may well be, that means it is very difficult for anyone to carry on the research and experimentation that is necessary to develop these processes unless that person has substantial financial resources to use for that purpose. Is that correct?

Mr. PEW. I don't think that is necessarily true. It was true in our case. We didn't realize at the time we made our decision. If we had known how much it was going to cost us we probably would have made arrangement with one of these other companies.

Mr. Cox. Taken the license and paid royalties?

Mr. PEW. Yes.

¹ For hearings held by this committee on the subject of patents see Hearings, Part II, PATENTS—Automobile Industry, Glass Container Industry; and Hearings, Part III, PATENTS—Proposals for Changes in Law and Procedure.

Mr. Cox. But, generally speaking, those are the two alternatives which a man faces.

Mr. PEW. Yes, sir.

Mr. Cox. So much for patents.

METHODS OF DISTRIBUTION

Mr. Cox. I would like to ask you a question, Mr. Pew, about the methods of distribution which your company uses. Do you sell most of your products direct to the retailers or do you deal with any kind of middleman?

Mr. PEW. Most of our products are sold direct to the retailer.

Mr. Cox. Are there instances in which you deal with a middleman of some kind, a jobber or wholesaler?

Mr. PEW. We have a certain small percentage of our business which goes to our distributors.

Mr. Cox. Are those distributors men who sell only your products?

Mr. PEW. In some cases, but in many cases they are not.

Mr. Cox. Do they sell the product under your house name?

Mr. PEW. In every case.

Mr. Cox. In every case? You sell no gasoline, unbranded gasoline, to middlemen for distribution under other names?

Mr. PEW. No.

Mr. Cox. Do you have any opinion as to whether, generally speaking, those middlemen perform useful functions in the industry?

Mr. PEW. I think they do, very definitely.

Mr. Cox. In terms of volume, how much of your gasoline passes through their hands—can you tell us?

Mr. PEW. 8.5 percent.

Mr. Cox. Just what is useful economic function that in your opinion they perform as to that part of your volume?

Mr. PEW. In the sparsely populated areas of the country where an organization handling a great many different commodities can operate, and operate efficiently, very often a similar organization handling only one commodity will not transact sufficient business to justify their existence.

Mr. Cox. In localities or regions where you deal with these jobbers or distributors, do you also sell direct to retailers?

Mr. PEW. No; never.

Mr. Cox. So that if you sell direct to retailers in a particular marketing area, you have no distributors in that area?

Mr. PEW. None whatever.

Mr. Cox. And the converse is true, if you have distributors you do not sell direct to retailers:

Mr. PEW. That is correct.

Dr. LUBIN. Mr. Pew, do these jobbers handle anybody else's product other than your own?

Mr. PEW. They handle a great many products.

Dr. LUBIN. Do they handle other brands of gasoline other than Sunoco?

Mr. PEW. I don't know. I don't suppose in most cases that they do.

Mr. Cox. Do your contracts with these jobbers in any case require them to handle only your product?

Mr. PEW. I don't know.

Mr. Cox. Do you think you have that information with you?

Mr. PEW. I am told that in the main they are largely exclusive contracts.

Mr. Cox. They are bound by the contracts to deal only in your products. That is as far as gasoline is concerned but not as far as lubricating oil and things of that kind are concerned.

Mr. PEW. Petroleum products.

Mr. Cox. But nothing else. Do they get anything else from you except petroleum products?

Mr. PEW. No.

Mr. Cox. Mr. Snyder calls my attention to the fact that under these contracts you apparently agree not to go into the territory where the jobber operates, for—I quote now from the contract:

for purposes of competition in any way that would tend to lessen the profits of the agent as contemplated under this agreement.

That I take it is the usual stipulation in these jobber contracts?

Mr. PEW. I presume so, I don't know.

Mr. Cox. If I suggest to you that this form of contract was given to us in response to the questionnaire we addressed to you, then I suppose you would accept the suggestions that it is a regular stipulation.

In dealing with these jobbers, on what terms is the price fixed at which they are to receive gasoline, can you tell us, generally? It is in the contract. Perhaps you would like to look at paragraph 6 in the contract. I point out, Mr. Pew, that—

the agents shall sell company's products at company's regular marketing prices as the same shall be announced from time to time by the company.

Stopping there for a moment, you do announce marketing prices from time to time, I take it, which are the prices that are operative under this contract?

Mr. PEW. To these distributors.

Mr. Cox. These distributors. How are those prices arrived at on your part?

Mr. PEW. The price is determined by the dealer price in that locality, and he receives an additional allowance of $1\frac{1}{2}$ or 2 or $2\frac{1}{2}$ cents, depending upon the nature of the business as pertaining to that particular area.

Mr. Cox. And by the dealer price, you mean the price at which other companies sell to retail dealers?

Mr. PEW. Quite.

Mr. Cox. So no matter what that price is, you give your jobber this margin which you have been speaking of?

Mr. PEW. Quite.

Mr. Cox. And as that price goes down or up, your price to the distributor goes down or up?

Mr. PEW. Quite.

Mr. SNYDER. By the dealer price, Mr. Pew, you mean the tank-weight price?

Mr. PEW. The tank-wagon price.

Dr. LUBIN. In the event that price goes down is there any guarantee to the jobber that such stocks as he has on hand will be taken care of on that adjusted basis, or does he handle that risk himself?

Mr. PEW. The stocks are consigned to this distributor.

Mr. SNYDER. With reference to paragraph 13 in that contract, Mr. Pew, are the commissions on gasoline, motor oils, and other products uniform with all of your commission agents or jobbers?

Mr. PEW. The commission varies somewhat due to the character of the territory in which the product is sold. In the very sparsely developed communities where the cost of doing business is greater, these commission men get a larger commission.

THE SUN OIL CO. AGENCY AGREEMENT

Mr. Cox. Is there any margin or any difference between those who sell only your products and those who don't, if you do sell to any at all who sell any other persons' products as well as your own? Is there any margin like your margin in the retail end of the thing between your exclusive agents and those who aren't exclusive?

Mr. PEW. I don't think we have any agreements with distributors who are not exclusive.

Mr. Cox. I understand you testified that way, but I also got the impression a few moments ago, which may be erroneous, that you did on some occasion sell to jobbers or distributors who didn't handle only your products but not under the same kind of contractual arrangement.

Mr. PEW. I don't know of any instance.

Mr. Cox. In other words, all of these men deal with you on an exclusive basis.

Mr. PEW. As far as I know. There may be some exceptions but I am not familiar with them if there are.

Mr. SNYDER. Mr. Pew, this contract makes the distributor an agent of the Sun Oil Co. Is that correct?

Mr. PEW. That is a legal question that I am not prepared to answer.

Mr. SNYDER. On the face of the contract, is he not an agent of the Sun Oil Co.?

Mr. PEW. I wouldn't be able to answer that.

Mr. Cox. You'll agree, won't you, that the contract says he is an agent?

Mr. PEW. If it says so.

Mr. SNYDER (reading from the Sun Oil Co. agency contract):

THIS AGREEMENT, made this _____ day of _____, by and between the SUN OIL COMPANY * * * and _____, party of the second part, herein-after called agent.

Mr. PEW. That seems quite clear.

Mr. SNYDER. What general instructions do you give this agent in regard to selling your products?

Mr. PEW. I can't tell you.

Mr. SNYDER. Do you supervise his activities from day to day?

Mr. PEW. I am afraid I will have to refer that to our sales department.

Mr. SNYDER. Does this agent make reports to you from time to time as to how he conducts his business, to the company?

Mr. PEW. He makes reports and we keep in close contact with him.

Mr. SNYDER. The agent hires his employees?

Mr. PEW. Yes.

Mr. SNYDER. Does he conduct the station at his own expense? Does he pay taxes?

Mr. PEW. I think we have different arrangements. Usually he conducts the station at his own expense, pays all his taxes, and our only relationship with him is that which is set forth in the agreement.

Mr. SNYDER. I am speaking of the distributor at the bulk plant rather than the station.

Mr. PEW. The distributor, yes.

Mr. SNYDER. Does he pay the social-security taxes for his employees?

Mr. PEW. Yes.

Mr. SNYDER. Is he liable for damage, accident, at the bulk plant?

Mr. PEW. I would say so; yes.

Mr. SNYDER. In regard to credit arrangements, paragraph 11 of the contract reads:

The agent shall be governed in granting credit to Company's customers by the credit policy of Company, and shall make all bills to customers in the name of the Company, and shall collect daily all accounts receivable due Company for goods sold to Company's customers and make daily deposits of the money collected for Company's account in a depository designated by Company, the account of said depository to be carried in Company's name and subject to withdrawal by Company only.

Does the company have a complete credit policy by which certain customers are granted credit?

Mr. PEW. They have.

Mr. SNYDER. Does this agent from time to time add customers for credit to that list?

Mr. PEW. I don't know.

Mr. SNYDER. In other words, after reading this contract, does the agent distributor conduct his entire business out of the funds which he receives from you as commission?

Mr. PEW. I would presume so.

Mr. SNYDER. Are these bulk plants which you turn over to him your property?

Mr. PEW. I think we have in some cases turned over bulk plants to him and in other cases he has provided his own bulk plant; and in the commission which he receives consideration is given to the question as to who has furnished the capital for the bulk plant.

Mr. SNYDER. In paragraph 24 of the same contract—

Agent shall be specifically prohibited from incurring any indebtedness or assuming any liability in the name of the company or for its account without first having received the written consent of company to incur such indebtedness or liability.

The agent hereby agrees to indemnify and save harmless company in and from all suits, losses, claims, liabilities, or damages which may arise out of any injuries to persons or property—

and so forth. Do you consider this agent as an employee of the company?

Mr. PEW. No. That is not my advice from those who are conversant with the details. Personally, I have no knowledge as to why certain nomenclature has been used in these contracts, but I shall be very happy, indeed, to have our attorney, who has prepared the agreements in question, come before you gentlemen and explain any of these details you may desire to have elucidated.

Dr. LUBIN. Would you consider one of these bulk-plant operators an independent distributor?

Mr. PEW. Well, I consider that he is just what he represents to be here, a distributor of our products.

Dr. LUBIN. Well, in view of our discussion yesterday as to the function of the independent and his freedom, and so forth, would you put him in the category of these independents you were talking about yesterday?

Mr. PEW. Yes.

Dr. LUBIN. Despite the fact that everything he can do is determined by this contract?

Mr. PEW. I can't agree on that. He has complete freedom of opportunity. There is no restriction as to his gallonage, no restrictions as to how he shall conduct his business excepting insofar as it affects losses that might otherwise fall on our company.

Mr. Cox. During the life of the contract he can't handle anyone else's product?

Mr. PEW. During the life of the contract he cannot handle other products.

Mr. Cox. To that extent the freedom which you spoke of yesterday to pick and choose between areas of activity and other products is limited by the contract, is it not?

Mr. PEW. In the case of this particular distributor. But here he has chosen his ground.

Mr. Cox. Chosen to make the contract with you?

Mr. PEW. Yes.

Mr. Cox. It has been suggested to me, Mr. Pew, that this contract might be regarded as having the effect of getting the maximum of service from the distributor and at the same time assuming the minimum of liability for his actions. Would you accept that characterization?

Mr. PEW. No; I wouldn't. I think all these questions relate one to the other, the question as to what his compensation is for the doing of the business, the question as to the gallonage involved, his liabilities, our liabilities, all of those things are interrelated.

Mr. Cox. Well, I am not sure it would be right to regard that characterization as invidious at all, merely as a matter of business policy you would like to get the most service from the distributor you could, wouldn't you? Wouldn't that be good business?

Mr. PEW. Yes; I think it would be equally good business on his part to do everything for the interests of our company that he could.

Mr. Cox. And it would be equally good business on your part to limit your responsibility for his actions so far as you could?

Mr. PEW. Quite, and it would be equally wise on our part to provide conditions which would enable him to make his activity as profitable to him as is possible.

SUN OIL CO.'S ACQUISITION AND PRODUCTION OF CRUDE OIL

Mr. Cox. Now, I would like to ask you a few questions about your acquisitions of crude oil. You produce some of your own crude oil from your own wells, do you not?

Mr. PEW. Quite.

Mr. Cox. Do you produce enough crude oil in a year that way to satisfy the requirements of your refineries?

Mr. PEW. By no means.

Mr. Cox. So that you have to buy some crude oil from others?

Mr. PEW. Yes.

Mr. Cox. Can you tell us offhand where that crude oil is bought and used?

Mr. PEW. Most of our crude oil that we refine at our refinery in Philadelphia is produced in the State of Texas, something less than half of which comes from wells that we have drilled, and the balance is that which we purchase. The largest single source of our supply comes from the East Texas field.

Mr. Cox. And taking that field as an example, do you own wells in that field also?

Mr. PEW. Yes.

Mr. Cox. So that you are producing oil from your own wells and at the same time buying oil in the field from others? Is that true of other fields in Texas as well?

Mr. PEW. That is true in most all of the fields.

Mr. Cox. How do you determine what price you are going to pay for crude oil which you purchase from others?

Mr. PEW. That is very largely a question as to our view of the general competitive situation. If there is more crude oil being produced than there is a ready market for, and if as a result of that excess production the price of refined products becomes so low that it is no longer possible to operate the business without suffering heavy losses, we would reduce the price of crude.

On the other hand, if the production were not excessive, if there was a great demand for crude oil, and if the markets as a result had stiffened greatly, there was an evident need for encouraging drilling, we would increase the price of crude oil.

Mr. Cox. In looking at that situation do you take into account at all the price that is being offered for crude oil in the same field by other companies?

Mr. PEW. That has a very important bearing.

Mr. Cox. Is there any system of price leadership so far as the price of crude oil is concerned?

Mr. PEW. I would think that that question might be answered in some such way as this: The company that has the largest interest in the field, and that is most affected by competitive conditions, is very apt to be the leader in any price change.

Mr. Cox. When you say he has the largest interest, will you tell us just precisely what you mean by that?

Mr. PEW. Who is running the largest amount of oil out of any particular area.

But, if that particular interest failed to change a price at the time I thought it ought to be changed, then I would take the initiative.

Mr. Cox. Well, suppose that interest had a price that was lower than you thought the price ought to be, would you change your price upward even though their posted price had not been changed?

Mr. PEW. Our company has done just that thing on several occasions.

Mr. Cox. Can you give us an example of two or three occasions when that occurred?

Mr. PEW. I haven't the exact dates in my mind, but I will be glad to get them and furnish them to this committee.¹

¹ Mr. Pew subsequently supplied the information in a letter, dated November 22, 1939, which is included in the appendix on p. 7695.

Mr. Cox. And I suppose that certainly the converse is true, if their posted price is too high, there have been occasions when you have reduced your price below that price.

Mr. Pew. I can't recall any such instances, but I think there have been.

Mr. Cox. Were there ever circumstances in the East Texas field or other fields in Texas where you have posted a price but haven't been willing to buy any crude oil at that price or at any other price?

Mr. Pew. There have been two or three cases. Of course, we can't run all the oil in the East Texas field.

Mr. Cox. I realize that.

Mr. Pew. And there have been cases down there when it was difficult for certain producers to get connections, and I know we have on several occasions helped out and made a lot of connections and run oil which we didn't require in our refining operations, and which we put into our tanks.

Mr. Cox. Then there have been situations there where these prices have been posted, not only by your company but by other companies, when in fact the crude oil couldn't be sold at those prices; is that correct?

Mr. Pew. We posted the price which was paid to all of the producers who were connected to our lines, and from whom we were buying the crude. There have been one or two instances when there were a few new wells brought in, when it was difficult for those new wells to get connections; but I think that in every case of that kind, within a comparatively short period, connections were made to those wells and their oil was run. But there have been times, two or three times to my knowledge, when it was difficult for certain producers to get connections because of the large quantities of oil that were coming out of the field at that moment.

Mr. Cox. Has that been true at any time since the field has been subjected to proration regulation?

Mr. Pew. My recollection is that there was a little difficulty existing at one time last year, in '38. I would like just to make one remark on that point. One of the witnesses who is prepared to appear before you gentlemen, Mr. DeGolyer, is intimately familiar with the producing conditions in that area. He is prepared to give you all of this data.

Mr. Cox. I realize a great many of these questions relate to what will be covered in further testimony; and yet, because you are the president of an operating oil company, I think it may be interesting for the committee to hear what you have to say, at least in a general way, on a great many of these things that will be covered in more detail later. That is the purpose of these questions.

Tell me this, Mr. Pew. I assume from something you said yesterday that you have at least a general idea, subject to certain important qualifications, as to the cost of producing crude oil from your own wells. Is that correct?

Mr. Pew. Yes, sir.

Mr. Cox. What is the relation between that cost and the price you have to pay for the crude oil you buy from others?

Mr. Pew. Last year we produced 13 million and some hundred thousand of barrels of crude at a loss.

Mr. Cox. Well, would it be proper for me to assume from that that it is cheaper for you to produce your own crude than it is to buy it from others, or is the converse true?

Mr. PEW. Some years we have had losses and some years we have had profits, but on the whole, as I said yesterday, if I were assured of a constant supply of the kind of crude I wanted over a long period of years, so as to keep the other activities of our organization functioning, I would prefer to buy.

Mr. Cox. Then is it your judgment that a man who operates a refinery must own his own wells if he wishes to be assured of a supply of crude oil?

Mr. PEW. No; I think it largely depends on the size of his operation.

Mr. Cox. Well, suppose it is an integrated company, not a large company but a company slightly smaller than your own.

Mr. PEW. We have always been able to buy all of the oil that we required. There has always been a fear in the minds of certain members of our board that we might sometime run into a situation when we couldn't get the qualities and quantities we wanted.

Mr. Cox. Then your policy in owning and operating wells, is, in a sense, based on a hypothetical fear, isn't it?

Mr. PEW. Quite.

Mr. Cox. But there has never been a time when you couldn't buy all the crude oil you needed, is that correct?

Mr. PEW. That is certainly true of recent years; yes.

Mr. Cox. So you owned the wells simply to guard against the contingency that the supply might be curtailed for some reason; is that correct?

Mr. PEW. The hope that perhaps we might improve our operations so as to make some money out of it.

Mr. Cox. But, by and large, the ownership and operation of these wells has not been a profitable part of your business.

Mr. PEW. No.

Mr. Cox. So you think as far as the financial aspect of the situation is concerned, you might be better off if you didn't own any wells?

Mr. PEW. That is my judgment.

Mr. Cox. But nevertheless your company has owned them, and is it doing any additional exploration with a view to acquiring more oil-producing properties?

Mr. PEW. It is.

Mr. Cox. So that you not only own wells now, but you are spending money in the hope that you may acquire some more wells.

Mr. PEW. Quite.

Mr. Cox. And probably after you acquire them you will continue to lose money on those wells.

Mr. PEW. We hope not.

Mr. Cox. But at least you are losing money on the ones you have, and that hasn't discouraged you in your attempts to find more.

Mr. PEW. No.

Mr. SNYDER. Mr. Pew, I believe the company's records for 1938 show that you produced 13,000,000 barrels of crude oil, that you purchased 24,000,000 barrels of crude oil, and sold 11,700,000 barrels of

crude oil. I suppose those three operations are carried on by your crude-oil department—production, purchases, and sales. In the year 1938 was your crude-oil department conducted at a profit or a loss?

Mr. PEW. I have just testified that it was conducted at a loss.

Mr. SNYDER. You said your producing, your own producing, was conducted at a loss. Do you include purchases and sales of crude oil also?

Mr. PEW. The crude oil wasn't sold. The crude oil was shipped to our refineries.

Mr. SNYDER. Your answer to the question here definitely shows 11,000,000 sold.¹

Mr. PEW. We have production in certain areas where we don't have our own pipe lines, that we have to sell. That is what this 11,000,000 barrels is.

Mr. SNYDER. When you sold your 11,000,000 barrels, did you make a profit or a loss on that transaction?

Mr. PEW. I don't think we have any figures to show.

Dr. LUBIN. You mean to say, Mr. Pew, you don't know whether you are selling something at a loss or at a profit?

Mr. PEW. I don't think we have very definite figures to show, because the costs in that operation, many of them, are common to the costs of the other operations in our field. A large portion of all of our expenses are common to all of the field. Now, when we take oil from a certain field and sell it, we don't know what portion of that particular expense goes to that particular oil. We do know, or think we know, something as to the total expenses of the production of all of our oil.

(The vice chairman assumed the Chair.)

Dr. LUBIN. So you might be consistently losing money on the oil you sold and you wouldn't know you were doing it.

Mr. PEW. Well, we would have a pretty good idea. We have all kinds of subsidiary studies on this. I haven't any such studies with me. I will be very happy to have such a study produced and put in evidence.

Mr. SNYDER. Mr. Pew, when you purchased 24,000,000 barrels of oil in 1938, did you purchase that at a price above or below your cost of production?

Mr. PEW. In 1938, if we lost money on the oil that we produced, naturally what we would purchase would be purchased below our cost of production.

Mr. SNYDER. Is that absolutely true? Then it probably was an average loss over the whole department.

Mr. PEW. I think that is a fair statement.

Mr. Cox. Would you have any opinion as to whether that would be true as to all the larger companies which own their own production as well as operate refineries?

Mr. PEW. I must confess that my information is to the effect that the other companies are better operators than we are and made more money out of their production than we have been able to show.

¹ The "question" referred to was in the Committee questionnaire sent to oil companies before the hearing. It appears, as "Exhibit No. 1137," in the appendix on p. 7426.

EFFORTS OF NONINTEGRATED INDEPENDENT TO COMPETE WITH LARGE
INTEGRATED COMPANY

Mr. Cox. Would it be a fair assumption in the case of those companies that the oil which they buy is acquired at a cost greater than the cost of production of the oil which comes from their own property?

Mr. PEW. I think that it is a fair assumption.

Mr. Cox. And of course, as between a company in that position and a small independent refiner who has to buy all of his oil, the larger company has a substantial competitive advantage, hasn't it?

Mr. PEW. No; I don't think so. It all depends on the price. If the price is a fair price, determined by fair methods, I would say not.

Mr. Cox. But isn't it just a matter of arithmetic, Mr. Pew? If the larger company gets 60 percent of its oil below the posted price in the field and the independent has to buy all of his oil at that higher price, isn't it necessarily true that his cost of raw material must be substantially in excess of that of the larger company?

Mr. PEW. It is true that his cost is in excess of that of the other company, but it isn't true that he is at a competitive disadvantage. And in the case of the man who has no investment in connection with the production of the oil, and who doesn't have any costs in connection with that investment, it doesn't follow that he is at a competitive disadvantage.

Mr. Cox. Well, but I assume from what you said that even taking into account the costs of exploration and of ownership and of operation of the wells, that nevertheless the oil that came out of those wells was acquired at a cost less than the posted price in the same field; and if that is true, your explanation which you have just given doesn't quite explain away the disadvantages of the smaller independent operator.

Mr. PEW. I still don't agree. Assume that a small independent has \$100,000 invested in his plant while a more integrated company has \$100,000 invested in plant and an additional \$500,000 invested in production. The man with the investment in both plant and production might be at a distinct disadvantage, even though he produced his oil at a lower cost than the other man could buy it for; because if both of them are entitled to earn 6 percent on their investment, the man who produced his oil would have to earn \$30,000 from his production in order to put himself on an equality with the man who had no investment in production. The man with the smaller investment might pay somewhat more for the oil he bought and still have an advantage.

Mr. Cox. Well, but if that interest on his investment is included in the cost of producing crude oil from his own wells, and even with that included, he produced that oil at a cost less than the posted price, then, taking into account the investment, he has a competitive advantage, has he not?

Mr. PEW. I think that is a highly hypothetical question. The same condition obtains in every business and in all conditions of trade the world over.

Mr. Cox. I think it probably does, but I wonder if that condition that you say exists anywhere doesn't somewhat qualify your answer that you gave yesterday that the small independent refiner does not

suffer under any competitive disadvantage as opposed to the large integrated operator. I simply raised the question as to whether or not, by reason of size and wealth alone, the larger operator does not have a substantial competitive advantage.

Mr. PEW. I shall have to reiterate my statement of yesterday to the effect that a small operator has many advantages over the larger integrated operator, for the very simple reason that he can choose his spheres of operation; he can buy the kind of crude oil which is best suited to his purposes; he can distribute those products in such areas as may be the most profitable for him.

Mr. BERQUIST. Right there, Mr. Pew, is not the major company, like yourself, in position to adjust its purchases in accord with the advantages that you attribute to the independent refiner? I note here also that in 1938—in which you said your purchased crude must have cost less than your produced crude—in that year you bought 1,800,000 barrels less than you did in the year before, and if the advantage was on the side of purchased crude, wouldn't it have been advisable to cut down the quantity that you produced at a loss and increase the proportion that you purchased?

Mr. PEW. The problem isn't so simple as that. This production comes from a great many different areas, widely scattered. In certain of those areas we have no transportation facilities; certain of the crude can be more advantageously handled by other companies, and that we sell.

Mr. BERQUIST. By that you mean in some areas where you produce you do not have transportation?

Mr. PEW. Yes.

Mr. BERQUIST. You have to rely on other people for transportation.

Mr. PEW. Quite right.

Mr. BERQUIST. And for that reason you are at a disadvantage when you rely upon other people for transportation?

Mr. PEW. We sell that oil in the field in the customary way.

Mr. Cox. Why do you do that?

Mr. PEW. Well, we sell it in the field because very often we prefer not to run that particular oil; that oil we would have to take deliveries on at terminals which are not convenient for us to take delivery. Our ships go into our own terminals, pick up this oil and carry it to our own refinery. These other terminals are quite a distance away, and most of these quantities are very small, amount to only a few thousand barrels a month, so the convenient thing for us to do is just to sell it to the pipe-line companies located in those areas. We have in a few instances—in several instances—arranged with the other companies in such cases where large volumes were involved to move the oil into their territory and we have sent our ships around to pick it up.

Mr. Cox. Do you ever move any oil through pipe lines belonging to other companies?

Mr. PEW. Oh, yes; quite a bit.

Mr. BERQUIST. But in the instances you cited, where you do not have your own pipe-line facilities, you find it advantageous to sell rather than to ship through pipe lines owned by others?

Mr. PEW. I said we did that in a great many cases because there were small quantities of oil involved.

Mr. BALLINGER. How long has your company, Mr. Pew, been an integrated company?

Mr. PEW. I tried to point out to you gentlemen yesterday that that was something that we just discovered a few years ago when somebody accused us of the fact.

Mr. BALLINGER. Well, wasn't there a period in the history of your company when—I want to ask you whether you personally were not, or whether officials of the company were not rather critical of the majors, the so-called integrated companies?

Mr. PEW. Oh, I can remember back in 1911 when we were very critical. That was before the dissolution of the old Standard Oil Co. trust.

Mr. BALLINGER. Well, that represented the height of integration, didn't it?

Mr. PEW. No. That didn't represent integration at all; because that company was engaged almost exclusively in the transportation and refining of petroleum. They were almost not at all engaged in either production or in marketing.

Mr. BALLINGER. But since the dissolution you have never been critical of the so-called integrated companies?

Mr. PEW. I think that I have never been critical of the so-called integrated companies after the dissolution of the Standard Oil Co. and the setting up of the independent organizations.

The VICE CHAIRMAN. Mr. Pew, how does it come about if it is more profitable to operate as an independent concern, a small business, that integration progresses? It seems a good businessman wouldn't go in the direction of smaller profits.

Mr. PEW. Before you close—

The VICE CHAIRMAN (interposing). I withdraw the question if you have discussed it.

Mr. PEW. Before you close your mind on that I want you to get a little information on that point which will be submitted by others. It is a statistical question; the boys¹ have the statistics. I don't have them in front of me. In fact, I understand the trend is in exactly the opposite direction.

The VICE CHAIRMAN. I don't know about oil, but I used to be a pretty good horse trader; and I never traded a horse for one that wasn't better. Why should an independent go into the integration when that brings him less profit relatively? I can't figure it out.

Mr. PEW. Well, the independent starts in business in a small way. In a small way he can be an opportunist. He can take advantage of certain special conditions, which he does, and he finds it profitable.

The VICE CHAIRMAN. But why does a person who is trying to make money out of his business change his form of business from one that is of higher profit to integration, where he gets less? That is just a concrete proposition you can lay right on the table. Why does he do it?

Mr. PEW. There are only limited opportunities for that kind of thing. A man goes into the oil industry and he takes advantage of certain special conditions which he finds to be profitable. His business grows. Then he finds that he no longer can engage in these small undertakings. His business has gotten too large for it. He

¹ Refers to economists for American Petroleum Institute.

has to develop something permanent. The first thing he knows he has started into integration himself. That is the way all these corporations have grown.

The VICE CHAIRMAN. I understand that answer. Then why is it that the big concerns are not destroyed by the combined attack of small people who are making more money, relatively, out of their business?

Mr. PEW. There is a business balance arrived at. There is only an opportunity for a certain number of these activities. A man can be an opportunist only when certain opportunities are available. There comes a time when the cream is all gone; after that he has to integrate.

The VICE CHAIRMAN. You mean the little company can make it, but there aren't so many places for the little man?

Mr. PEW. I mean that there is a limit beyond which the opportunist can't go. He has to get into integration eventually. I think if you will go back and take the history of the development of most of the large companies today, they started in a small way.

The VICE CHAIRMAN. Then integrated, but they are going in the direction of smaller profits, and that is what I don't understand. I wouldn't do it as a horse trader; you might do it as an oil man.

Mr. PEW. Well, I think perhaps I haven't made myself clear. There are certain opportunities for the small independent operator; he can go into a certain oil field and he can buy certain small quantities of oil that are being produced there that are more useful to him in his particular line of work. He can go out and sell those products under most advantageous conditions because he can choose his territory.

Now there is a limit to the kind of thing that he can do in that direction. If he wants to continue to be an opportunist he is very apt to go along and continue to make very large profits, but usually he determines after a few years that he doesn't want to be an opportunist; he wants to have something substantial and he wants to be—

✓ The VICE CHAIRMAN (interposing). May I interrupt you? Why isn't his business substantial if he is making more money than he is making in integration?

Mr. PEW. Because he is not quite sure whether he can continue doing those things.

The VICE CHAIRMAN. Why can't he continue if he is making a lot of money?

Mr. PEW. Well, he may not be able to do the same trick next year, or he may have to go out into some other direction, so the natural thing for him to do with his money is to develop along integrated lines.

The VICE CHAIRMAN. Does he continue to make more money in that small operation until he goes broke, and then he has to quit? Is that the idea?

Mr. PEW. Well, if I may develop that a little further. I very definitely believe that there is in every corporation the seeds of destruction, and that inevitably when a corporation gets too large it is going to go broke. I don't believe it is possible for a company to continue growing indefinitely.

The VICE CHAIRMAN. It seems to me—if I may be pardoned—that the little man does have his opportunities as long as there are fields that he can select that represent what you call the cream of the business; it seems inevitable of course that there must be bigger activities that he can engage in, but is this little man in practice disturbed by an attack by the big concerns? We hear much of that. Suppose he goes out and tries to get some cream. We hear the complaint that as soon as it is discovered that there is cream there, there are other people, bigger people, who are cream hungry and they come in and choke him off from his cream. I mean, we are just discussing now about what we have to find out about it.

Mr. PEW. Well, I think, Congressman, that there are certain factors of human nature that enter into this picture. I have never known a man who failed in any activity that didn't blame some other thing or some other person for his troubles. That applies to individuals who have entered into a business of their own; it applies to individuals who are employees of corporations. I have yet to find a man who is willing to admit——

The VICE CHAIRMAN (interposing). We agree with that proposition.

Mr. PEW. Now, you can get thousands of those men to come before you and testify against this industry; you can get thousands of such men to testify against any industry.

ECONOMIC PROBLEMS TO BE SOLVED

The VICE CHAIRMAN. We agree with the general proposition. The fellow that goes broke wants to blame somebody else for it; that is natural. We don't need to put much in the record about it; we agree with that. What we really are charged with here; as I see it, is to find out, first, whether or not monopolistic conditions, obtain in the oil industry; what chance the independent has, and if monopolistic conditions do obtain in the oil industry, what practices have brought that condition about; what can be done about it. And then I think probably in the American mind, at least in some quarters, the question is whether monopoly is good or not; a controlled monopoly that is involved in this study, as I see it. It is very difficult for people situated as we are to understand the details and sometimes it is difficult to be able to follow the testimony of people who know so much more about it than we do that we get all confused in a maze of big words, and technical terms, you know.

I mean, we are limited. We can't follow all this business, and if we just get this proposition out on the top of the table; and if you help us who are less fortunate in opportunities to understand it, I believe it would be helpful to us. We appreciate any contribution you gentlemen make in helping us to get digestible information for ourselves. You see this record gets so big that nobody will read it unless he is some professor, and he will use more words to explain it than there were in the original record.

Mr. PEW. Then, Mr. Chairman, may I make a suggestion which I think would be most helpful. I think if this committee would undertake a study over the past several years in order to determine the number of independent operators who have gone into the oil industry, the number who have succeeded and the number who have largely

developed their business in the last few years, it seems to me that would be the proof as to whether or not there was an opportunity for the small independent.

The VICE CHAIRMAN. That is at least one very good test. I think everybody could make that.

Mr. BALLINGER. Mr. Pew, going back to the old Standard Oil trust, wasn't that trust in the business of producing crude oil?

Mr. PEW. No; only perhaps in a very minor way.

Mr. BALLINGER. When the petition of the U. S. Government in the lower court alleged they produced 30 percent of the crude oil in the United States?

Mr. PEW. That wasn't my understanding.

Mr. BALLINGER. Wasn't it in the business of refining oil?

Mr. PEW. Refining and transporting.

Mr. BALLINGER. Transporting and also in the business of selling?

Mr. PEW. Not in a substantial way.

Mr. BALLINGER. Well, the petition alleged they were very substantially in the business of selling. Now if the facts which the Government submitted, and which apparently impressed the court, are true, how do you say that company isn't integrated?

What is the difference between that company and your company?

Mr. PEW. Well, I must confess that the statement they were producing 30 percent of the crude oil in this country was not my understanding.

Mr. BALLINGER. Well, if that were true, then, that company did represent the height of integration; it was integrated power that really caused you a lot of trouble and caused a lot of oil interests a lot of trouble?

PIPE LINE TRANSPORTATION, RATES OF RETURN AND THE ECONOMIC RESULTS

Mr. PEW. I don't think it was their integration that caused us trouble, no; I think it was their control over transportation. Not only the transportation by pipe line but the transportation by railroad. I don't think it is well understood——

The VICE CHAIRMAN (interposing). You think they are supposed to have gotten rebates?

Mr. PEW. They not only got rebates on the material that they shipped, but they got drawbacks on the material that we shipped, so there was no competition—it just couldn't develop.

Mr. BALLINGER. Then the present condition is that you own the pipe line but when somebody ships over the pipe line they are really paying you to fight them at the other end, aren't they? They are contributing to your war funds.

Mr. PEW. No. That all depends on whether the rates of the pipe line are reasonable.

Mr. BALLINGER. Well, assuming that they are reasonable, they are still subsidizing you, aren't they?

Mr. PEW. No; I wouldn't say so.

Mr. BALLINGER. Why not? If I am a shipper here and I am an independent and you own the pipe line and you have got the profits from the pipe line which you can transfer to the refining front or the selling front, every time I ship over your line I am contributing business to you to fight me.

Mr. PEW. You forget, sir; that we have a big investment in that pipe line.

Mr. BALLINGER. Granted. I grant that. I still say that, if I am an independent, I am at a handicap.

Mr. PEW. I don't think so, not after giving consideration to that investment. No more are you handicapped than if I had that money invested in some entirely unrelated business. I would still have that money to fight a certain competitor, if you choose to characterize it in that way.

Mr. BALLINGER. Not if you didn't own the pipe line, you wouldn't have that money.

Mr. PEW. If I had that money invested in some other activity I certainly would have the income from it to do what I pleased with.

Mr. BALLINGER. Well, that enters a whole problem in another field, the funds from that being used on one competitive front.

Mr. PEW. It seems to me, if I may so submit, that the whole problem here is one having to do with the reasonableness of the rates.

Mr. BALLINGER. The rates haven't been reasonable?

Mr. PEW. I think that that whole question has got to be studied in each particular case. There are many pipe lines that are losing money, some that are entirely shut down. Generally speaking, however, proration has lengthened out the life of oil properties. Therefore, pipe lines can be used for a longer period of time. That has had the effect of reducing the cost of moving oil by pipe line. As a result of that condition there have been in the last few years very substantial reductions in those rates. Now, I agree with you that the pipe-line rates must be reasonable. The responsibility in that connection rests with the Interstate Commerce Commission. As far as my own company is concerned, I think it is perfectly absurd to establish an unreasonable pipe-line rate because it is the total costs of all of our operations which have to do with our profits and our sales policies. Why should we set up a fictitious profit on our pipe-line operations? My own feeling is that we must keep the pipe-line rates reasonable and we must look to the Interstate Commerce Commission to see that those rates are reasonable.

Mr. BALLINGER. Well, you have raised a theory of competition here which I would like to get before the committee. I just want to put the illustration because it is analogous to this situation we are describing. If you are in the grocery business and you also own an undertaking establishment and a theater and a fleet of ships and you take the profits from those other businesses and route them on the grocery front, you may win the battle but it isn't because of your efficiency as a grocer; it is because you are calling in other allies and other sources, so that your efficiency there on the grocery front is not determined; as I say, by your efficiency as a groceryman. In this integrated movement you are calling on profits from other businesses, you have got them available to route on the competitive front where you sell the gas and oil, and it looks to me like the independent hasn't got much chance when you call in three or four other guys to help you.

Mr. PEW. You may be thinking way ahead of me, sir, but I confess I can't see the difference. If I own a pipe line and I charge a reasonable rate for the use of that line and obtain a reasonable earn-

ing as a result of obtaining that rate, there accrues to me a certain profit. Let's say that accrues in dollars, and I can see no difference as between the obtaining of an earning in that manner as compared with having invested that money in some entirely unrelated business and obtaining the same return on the investment. I can use that money in either case for any purpose I wish. You are an economist, I am a layman. I just can't see that.

Dr. LUBIN. Isn't the difficulty really in the definition of the words "fair and reasonable"? If the rate fixed by the Interstate Commerce Commission were fair and reasonable, it would cost you just as much to ship your oil over that line as it would me as an independent. That is really the crux of the matter. A fair and reasonable rate is one that would cost you just as much as anybody else.

Mr. PEW. I am sorry, but I just don't get your question.

Dr. LUBIN. In other words, a fair and reasonable rate for a common carrier is a rate which means that the actual cost of transporting a thousand barrels for a given mileage would be the same for everybody; namely, I would pay it in traffic rates to you as an owner, but if you were shipping your own oil the actual cost to you of shipping, the overhead and other things, depreciation, and so forth, would be just about what it would have cost me as an independent to ship over your line.

Mr. PEW. If you were both independents.

Dr. LUBIN. If you were the owner, the rate that you would be permitted to charge and the net cost to you would be about identical after you took into consideration depreciation, investment, return on your investment, and what the Interstate Commerce Commission set as a reasonable return on your investment.

Mr. PEW. Oh, yes; if you add to the cost a reasonable return on the investment, very definitely the cost to both of us would be the same.

Dr. LUBIN. It should be the same if the rate was reasonable.

Mr. PEW. Yes.

Dr. LUBIN. That is really the crux of the problem.

Mr. PEW. What is a reasonable rate.

Dr. LUBIN. Exactly.

Mr. PEW. If you and I can agree on what a reasonable rate is—you are the shipper and I am the owner of the line—then our problem is solved.

Dr. LUBIN. That is true. I am perfectly willing to admit that the rates must be reasonable.

Mr. BERGE. Isn't a larger question posed here than merely the question of whether the rate that the shipper pays is in itself fair? I think we can assume that it is if it is regulated, but isn't the question rather whether a set-up is fair which requires that a shipper pay even a reasonable rate to his competitor? Isn't there a broad question of whether that advantage is not so great as to be unfair and give him an advantage over the man from whom he must collect? Wasn't the commodities clause in regard to railroads based on the theory that a manufacturer of commodities ought not to have the advantages of ownership of transportation facilities and be able to collect, from others for whom he may haul, a profit? It seems to me that we concede that for these purposes everything you may be doing may be legal, and as the law now stands the rates you collect may be fair, but

that you are enjoying an advantage which the commodities clause denied to railroads under that act.

Mr. PEW. No; I think the two cases are not comparable. In the first place, the Interstate Commerce Commission was created for the purpose of correcting an abuse which had been practiced by the railroads. They were abusing a privilege which they had formerly enjoyed. No one has claimed, or at least I have never heard anybody express the view that the pipe-line companies in this country have abused their privilege.

Mr. BERGE. Do you base that upon the fact that the rates of the pipe-line are regulated? I mean you constantly refer to the fact that the rates must be fair because they are fixed by the Interstate Commerce Commission and we can assume that those are fair rates and if you observe them they are not in themselves unreasonable, but I don't see that your argument extends beyond that.

Mr. PEW. The fact that there have been only two complaints filed with the Interstate Commerce Commission on the rate structure seems to have some bearing on that situation.

Mr. BERGE. It may have bearing as to whether the rates are reasonable and I am conceding for this purpose that the rates are reasonable, but you surely are aware that there are numerous complaints from substantial groups throughout the country that come to various Government agencies and surely must have reached the oil companies that the whole system of having pipe-lines owned by integrated companies is unfair to the independents. Now, it seems to me that the theory you enunciate is squarely contrary to what the Supreme Court stated to be the purpose of the commodity clause, and I am suggesting here that the law does not treat railroads and oil pipe-lines the same in this respect. In regard to the commodities clause, I am just going to read one paragraph here from Mr. Justice Lamar's opinion in the *Delaware and Lackawanna case*, 238 U. S., in which he said that—

The commodity clause of the Hepburn Act was intended to prevent railroads occupying the dual and inconsistent positions of public carrier and private shipper, in order to separate the business of transportation from the business of selling. That statute made it unlawful for railroads to transport in interstate commerce any coal in which the company had any interest direct or indirect.

I must confess that I don't see the distinction.

Mr. PEW. Well, there is a very real distinction, and that distinction has been held by the Supreme Court. I shouldn't comment on something with which I am not very conversant, but as I recall it, there was a case handed down by the Supreme Court in connection with the United States Steel Co. in which they held that an industry owning its own transportation facilities was quite a different proposition from that of a transportation agency owning its own industries. And in the case of the United States Steel Co., they held that it was entirely right and proper for the United States Steel Co. to own their own railroad.¹

Mr. BERQUIST. Mr. Berge, your inquiry was directed along the economic lines, was it not; and its economic implications?

Mr. BERGE. I am not questioning that there are distinctions in the law which make it applicable in some situations and not in others. The fact that the commodity clause may not have covered one situa-

¹ Testimony on the "Iron and Steel Industry" appears in Hearings, Parts 18, 19, 20, 26, and 27.

tion where it did cover the other doesn't seem to cover the question. In this case which I read, they state the purpose of the act as being to prevent the railroad from occupying the position of public carrier and private shipper. From the economic standpoint I can't see the distinction, although of course the commodity clause is very restricted in application and we are not pretending it has adequately solved the situation, even in the railroad field.

Mr. PEW. Of course, I pointed out yesterday, too, that the actual cost of these pipe lines is a very small element in the entire picture of the oil industry. I pointed out that out of a total investment of some \$8,000,000,000 in the industry, only 500 millions of that had to do with pipe lines.

Now I may also say that in a great many instances, perhaps the majority of instances, any shipper desiring to use a pipe line can arrange to buy a proportionate interest in that line. I know that that condition obtains in a great many areas.

The prime purpose of pipe lines is that they be used as a plant facility, a part of our assembly line in a mass-production industry.

Mr. BERQUIST. May I call the committee's attention to Table O and Chart XIV of "Exhibit No. 1139,"¹ which throw light upon the investment and earnings and rate of return of pipe-line companies. I think Mr. Berge's point was that with high earnings in the pipe-line field, that they could be utilized in other branches.

Now, referring to that tabulation which is made from the figures of the I. C. C., and verifiable, we find that on a depreciated basis the earnings were 28.4 percent; on the nondepreciated basis the figure is something like 14 percent, which is considerably higher than that for the industry as a whole, so obviously it is contributing to the average of the income by pulling it upward.

Also, may I point out further that the operating income of 15 major companies, their net operating income for 1938 was \$82,000,000. Of other major companies not included in that 15, it was \$10,000,000—the sum total of those two about \$93,000,000.

Now, contrasting that with the income derived by the nonmajor group, we find that the nonmajor group income was but \$2,000,000, and that of the aggregate income the percentages are: For the 15 major companies, 86, 4 percent of the total net income; of the other major companies not included in that list, 11 percent; and for the nonmajor companies the income derived for them was but 2.3 percent.

So obviously if the earnings in that department were much higher than was shown by Mr. Gill for the industry as a whole, the income from the pipe-line industry has contributed millions of dollars to their net income and at a rate higher than for the industry as a whole, whereas for the independents in the industry, their income derived from pipe-line operations is but 2.3 percent. So they can have a very little bit of contribution from this most highly profitable branch of the industry.

Mr. PEW. Now, Mr. Berquist, I assume that you have made that statement for the purpose of indicating to the committee that these earnings were unreasonable.

Mr. BERQUIST. No; I haven't said that at all. I have said merely that the major companies have the lion's share of the pipe-line branch

¹ The table and chart appear in Part 14-A, pp. 7730 and 7725, respectively.

of the business, and that that branch of the industry is by far the most profitable branch of the industry, and, as the result of that, they are in a strategic position on all competitive fronts because of the additional earnings which they derive from pipe lines.

Mr. PEW. Isn't that the same thing, then, as saying—

Mr. BERQUIST (interposing). That there is a lot of advantage in having pipe lines.

Mr. PEW. Isn't that the same thing as saying their earnings are unreasonable?

Mr. BERQUIST. I haven't said that.

The VICE CHAIRMAN. Gentlemen, this notion presents itself to my mind, and I hesitate to ask for information or suggestion because it is impossible for me to be present all the time, but if some light has not already been thrown into the record, it seems to me that now perhaps, or soon, would be a good time to develop this notion and see what we think of it.

In the first place, it seems to me that there is a substantial difference between a railroad and a pipe line insofar as attracting individual capital where you build the railroad expecting to get freight. A railroad is generally put into a country where there is a dependable source of traffic—and it is supposed to be rather profitable—and then it can haul a lot of different commodities.

I don't know whether there have been any pipe lines built into territories by anybody except somebody who is producing oil; I don't know whether or not anyone else will build them. If nobody will build a pipe line except somebody who is producing oil, unless the Government is going to do it, you have to attract capital to that construction, and you have got a limited territory to which to appeal, and that would seem to be the producers of oil.

This is merely for development. I appreciate that it is an important thing in considering the divorcing of pipe-line ownership from oil-producing ownership, or oil-refining ownership, to think who is going to build the pipe lines. Maybe there is an answer to that. If there isn't an answer to it, I don't see any route to go except to get these producers to do it, or the Government to do it. I haven't thought the thing through, but it seems to me some light ought to be thrown on that aspect of the matter if it hasn't already been done.

Mr. Cox. Another witness who is going to testify is going to cover some aspects of that, particularly as to the possibility of attracting capital.

The VICE CHAIRMAN. What I am anxious to do is to have this investigation proceed on lines—this is not said in the spirit of criticism—that will give some practical assistance to those responsible, as distinguished from academic discussion of these important questions. In other words, we want usable information. I don't know whether my colleagues will agree with me or not, but I believe they will; and we would like to see what can be developed.

Representative REECE. I was about to make inquiry as to whether any pipe lines had been built by other than producers?

Mr. PEW. I only know of one line that was built for the purpose of attracting business from people other than those who invested their money in the line, and as far as I can find out, there never was a barrel of oil put through that line.

The VICE CHAIRMAN. Was that because the territory was occupied by integrated companies? Were there any considerable number of independents operating in that territory who do have access to that line?

Mr. PEW. It was done a good many years ago and I just never have been able to get the full detailed story of it. It was run, I think, from a point in Louisiana out to the Mississippi River, and I think after they tried for a number of years to get somebody to put the oil through it, they used it for gas, but my information is very incomplete. But I think, sir, that very definitely the thing that makes a line possible is that the builder has an assured supply at one end and a definite outlet at the other. Now these profits that we talk about are possible only when your line is full, or almost full. When that line gets reduced in capacity to a point where it is only pumping 70 or 80 percent of the oil for which it was designed, profits just disappear. And so the first requirement it seems to me that should be in the mind of any man who builds a pipe line is that he is going to have an assured supply of oil and an assured outlet for it. Naturally, the large refining companies and the large producing companies are the ones who can best assure the continued use of the line.

Mr. BALLINGER. Let's approach it from perhaps a little different angle. Let's consider the possibilities of leaving pipe lines in the hands of the oil companies. If that were done, would you be willing to do the following things? First, would you be willing to have a Government agency make those pipe lines available to independent producers of oil on equal terms with the other companies or with the other majors? If they want to ship oil over it and they have the facilities to ship it, do they have the right to ship it?

Mr. PEW. Very definitely. They already have that right.

Mr. BALLINGER. Now we come down to the other problem, namely, that when they ship over the line they do, in effect, subsidize you. That is one of the underlying motives of the Hepburn Act. If that is true, let's say the profit made from the pipe lines shall not be used in the refining end of the business, and shall not be used in the marketing end of the business. You make those profits and declare them as dividends and wipe them out; you couldn't route them to another end of the business.

Mr. PEW. I can't answer that question intelligently because I can't agree on your premise.

Mr. BALLINGER. Well, the situation in respect to the coal companies seems to me almost identical with the little producer of oil. What chance does the little independent producer of coal in Pennsylvania have against a railroad that owns coal mines and can carry their coal for nothing, or charge him excessive prices for carrying it which constitutes a differential in the competitive struggle that he just couldn't overcome. It is the same situation in oil, with certain variations which the vice chairman indicated.

Mr. PEW. The Interstate Commerce Commission never would have been created for the purpose of regulating the railroads if they hadn't been guilty of abuse of a privilege. Now, the Interstate Commerce Commission already is in existence and has jurisdiction over the rates and the activities of these pipe lines, and it seems to me, sir, that this discussion is very academic, if I may take that privilege, because after

all, the sole responsibility of adjusting this whole question lies at the door of the Interstate Commerce Commission.

Mr. BALLINGER. To settle the problem I am talking about, we need more legislation. I mean, with the present set-up in the Interstate Commerce Commission we can't reach the things I am talking about. They have no way of prohibiting the oil companies from putting the profits from the pipe lines over into the marketing end of the business. And with due respect to the Interstate Commerce Commission, for which I have great regard, I don't think they have ever had enough money to really go into this thing, to really vigorously regulate pipe lines.

Mr. PEW. They are making a very comprehensive study now which I understand will be completed shortly. I am very much interested, though, in your psychology as to the taking of the money from one activity of the business and putting it into another activity. In an integrated company, sir, it is very difficult to determine accurately what your profits are in any particular activity. It is the sum total of those activities which produce your cost figure, and from that the earnings are computed by taking the total amount of money received from the sale of all your products and deducting the total cost.

Now, you seem to have the feeling that because a man owns a pipe line, and perhaps makes a fair return on that pipe line, that he takes that money and uses it to destroy somebody else in some other department of the business.

Now, I say to you that if that man had that same money invested in some other activity, the income from that would be equally available, if he chose to use it for destroying somebody else. But I haven't found in this oil industry, during the last 25 years certainly, any evidence on the part of any of these so-called integrated companies to the effect that they were out to destroy anyone.

Mr. BALLINGER. Well, of course, I wouldn't agree with your premise that a corporation engaged in one business should be permitted to promiscuously go around and invest anywhere it wants to; I think it ought to stay in that business, and as it makes its money it ought to declare its dividends. I am against this extension of control from one business to another and this promiscuity of investment that has been raised in the Borah-O'Mahoney bill; it is a problem that has to be gone into, but it would constitute a form of discrimination, I think, when we analyze it to the very bottom.

Mr. PEW. Which would?

Mr. BALLINGER. Investing around—getting dividends from other business; why not stick to the business you are in and as you make your money in that declare dividends?

Mr. PEW. Now, you just made the remark you thought perhaps there ought to be a disintegration of the pipe lines. That would be throwing us out of the very business that we have spent our lives in developing.

Mr. BALLINGER. Now, I haven't got the final opinion on what to do with this thing; I am certainly not advancing any, but I am saying we are trying to get at the evils of this thing. Now, if you want to keep those pipe lines, something ought to be done about it, from my standpoint. I don't think you ought to use the profits—you say you can't compute them, but I am sure they are there, and they are avail-

able to you. They may be a lump sum or a pot you are putting it into, but it constitutes sinews of war in the last analysis.

Mr. PEW. On the contrary, it is my opinion that we never got those profits.

Mr. BALLINGER. Who gets them?

Mr. PEW. I think they very largely disappear.

Mr. BALLINGER. With these earnings?

Mr. PEW. Quite.

Mr. BALLINGER. That is something new; I can't understand how you can do that, if you make the money.

Mr. PEW. Suppose we double the rates on our pipe lines. In order to increase our profits by an amount equal to the increased earnings that would obtain from the operation of the line, we would have to add a price to the sale of our products of oil equal to that figure. Now, you have to assume that the markets throughout the country would go up by an amount equal to the increase in the amount of money obtained from the increase in those pipe-line rates. I say to you that if the pipe-line rates went up tomorrow until they were doubled that the price of gasoline wouldn't go up a tenth of a cent.

Mr. BALLINGER. Why?

Mr. PEW. Because the competitive forces throughout this country would never sustain such a condition.

Mr. Cox. You do save money, though, on each gallon of your product that you sell by reason of your highly developed transportation system, don't you? Your company itself?

Mr. PEW. Very definitely; yes.

Mr. Cox. I was under the impression that sometime in the fall of last year you made a public statement to the effect that you saved approximately 10 cents a gallon on every gallon of gasoline you sold by reason of the ownership of your transportation.

Mr. PEW. I don't remember whether that was the figure but I have frequently made statements of that character that as a result of the correlation of all of the transportation facilities which the oil industry uses, and which they have themselves developed, we have effected a saving in costs, all of which has been passed over to the consumer by way of lower prices of, I have forgotten whether the figure was 7 or 10 cents a gallon.

GASOLINE PRICES

Representative REECE. We now seem to be touching upon the question of price, which is a phase of this study which probably holds the greatest interest to the large group of consumers. At sometime I would be interested in having you tell us how you arrive at prices.

Mr. PEW. You refer to how we arrive, for instance, at the cost of a gallon of gasoline?

Representative REECE. Yes, sir.

Mr. PEW. Well, that is a difficult question, but I will attempt to answer it.

Representative REECE. Well, I have in mind rather how you arrive in a general way at the price at which gasoline is sold to the distributors.

Mr. PEW. Well, gasoline prices are determined by consumer demand and producers' competition. There are a great many com-

petitive forces which have to do with the determination of price. If, as a result of unusual competition in a given area, we feel that the price should be reduced, we bring about such a reduction.

Representative REECE. How?

Mr. PEW. By publishing a lower price; we simply publish a lower price on our tank wagon of gasoline, or gasoline. If, on the other hand, the demand seems to be increasing over the supply, we will perhaps try out an increase.

But all prices are largely a question of trial and error. We sometimes put our price up, but if the other sellers don't put their prices up, then we have to retire as quickly as possible and bring our price down. If, on the contrary, we reduce our price, it compels all of the other marketing companies to reduce their price.

Mr. BERGE. What factors cause you to reduce your prices?

Mr. PEW. If we find that there is a lot of cutting of prices in the community, that we are losing business because other people are surreptitiously cutting their prices, we will make a reduction in our price.

Mr. BERGE. Would you ever cut prices first?

Mr. PEW. In the area in which we do business I think we have made the largest number of price cuts of any of the companies.

Mr. BERGE. I was wondering what factors other than the price cutting of the other fellows caused you to cut them, so I was interested in whether you led off.

Mr. PEW. We have led off a great many times.

Mr. BERGE. What factors caused you to lead off?

Mr. PEW. The instability of market conditions, the loss of business to others who were undercutting ours.

Dr. LUBIN. Then the other fellow did cut first.

Mr. BERGE. That is not answering the question. I wanted to know what factors caused you to take the lead in price cuts. If price cuts are always dependent on the other fellow, then we have to get him in and find out why he did it, but I thought if you ever led off in the price cut you could tell us what caused you to do it.

Mr. PEW. We have led off in price cuts where we were perhaps under all other sellers in the market simply because we felt that the best interests of the market would be served by a lower price. Our profits were perhaps larger than we thought they should be and we felt that a lower price would stimulate more business and we simply reduced the price.

Mr. BERGE. How could you tell whether your profits were larger? There must be some ultimate standard of judgment that you apply. Let's forget about the price cutting of the other fellow and find out what mental process leads you to cut when he doesn't cut. You mentioned instability of market conditions, which, to my mind, simply suggested again some price cutting from the other side. Let's forget about price cutting. You say you think your profits in some instances might be too big. How can you determine that if you don't know what your costs are?

Mr. PEW. We do know what our total costs are. We know what the total costs of all of the operations of our business are. We know what we are receiving for every penny. We take the return, the total amount of money which we receive for all of our products, and deduct that from the total operating costs of our business, including that of

crude oil, transportation, and so forth, and the result, of course, is our profit or loss. From that we determine what our price structure should be in the event we want to make a cut.

Mr. BERGE. Now, then, what you are doing is, in a rough, nontechnical way, deciding whether you are earning a fair return on your investment as a whole, something comparable to what is done in public utilities. Well, then, if you decide that you are earning more than a fair return on your total business, if you decide to make a cut, would you make that cut Nation-wide? If you did not make it on all of your business, what basis would there be for determining where you would make it?

Mr. PEW. Well, the conditions in each particular territory would have to be very carefully studied and understood.

Mr. BERGE. Does that mean anything more than what the other fellow is doing?

Mr. PEW. I wouldn't think so.

Mr. BERGE. Then it finally comes down to this, doesn't it: That you only make price cuts where somebody else is making them?

Mr. PEW. I don't get your point. I told you that we have made price cuts before any other cutting was done.

Mr. Cox. You make the price cuts sometimes, don't you, Mr. Pew, to increase your gallonage?

Mr. PEW. Oh, yes.

Mr. Cox. For example, there have been times in the middle twenties when you went into the State of Florida and cut prices there in order to build up your gallonage.

Mr. PEW. It is possible.

Mr. Cox. I understand that that was a fact. That was a situation where you did cut prices irrespective of the price which was being maintained by the other people in the market.

Mr. PEW. We very rarely cut prices for that purpose. It has always been our intention, our aim, to build up our business as the result of service and quality of product.

Mr. Cox. Then the competition you offer is not price competition primarily, but service and quality competition?

Mr. PEW. In connection with the sale of our gasoline through the stations; yes.

Mr. Cox. There have been occasions where you have resorted to price competition in order to get a position in the market.

Mr. PEW. I don't think we ever did much of that.

Mr. BERGE. You don't think you engaged in price competition?

Mr. PEW. I don't think we ever tried—I don't think we ever broke into a new territory and in order to get business reduced our price below the market. I don't think that was an actuating motive in connection with the development of our business.

Mr. Cox. There is no reason why you should be ashamed of doing something like that, is there, Mr. Pew?

Mr. PEW. No; I think it is a legitimate thing to do.

Mr. Cox. That is the ordinary course of competition?

Mr. PEW. I think it has been frequently done, but you asked me whether we had done it or not.

Mr. Cox. I just wanted to find out.

Mr. PEW. I don't recall that was ever our policy.

Mr. Cox. But you don't feel it is improper?

Mr. PEW. Certainly not.

Dr. LUBIN. I can't quite understand how, if that is not your policy, you say that you frequently lead in price cuts. If you don't cut prices to get more business, why do you take the lead in price cuts?

Mr. PEW. We cut prices not—we are talking about two entirely different things. The question that I just replied to was one in which a company breaks into a new area, builds stations, and in order to attract people to that station cuts the price way below everybody else. After they have built up a business and have a comparable position, they raise their price and sell under the same conditions that the other companies sell. That is something which I say our company has not done, at least to my knowledge. I also have said that I don't see any reason why we shouldn't do it if we want to. In this competitive system I think the people should do, within the framework of the law, pretty much what they please. If they want to cut their prices, I think they should be permitted to do so.

The question that you asked has an entirely different meaning, as I get it. Why do we cut prices in a market that is already established, where all of the companies are established in their business? I would say that we cut the prices there for the purpose largely of increasing business throughout the whole territory. We will get more business; when we cut the price we know that our competitors are going to cut the price, too, and they couldn't compete if they didn't, and as a result of the lowering of the price more people purchase our goods.

Mr. BERGE. May I ask this: You said that in instances where you lead off in the price cutting, one of the factors you take into account in determining where you would make it effective is the condition of the market. I take it that one of those factors would be the amount of independent competition; that is, if you have decided that your profits have been so satisfactory that you can reduce your prices in some areas, among other things, in determining where you would reduce them wouldn't you take into account the amount of independent competition? I don't mean that you would be governed by independent price cuts necessarily, but just the presence of that independent competition. You might cut prices in a certain city because there is a substantial number of independents doing business there, might you not?

Mr. PEW. Right. Not because there are a substantial number of independents, but we might cut prices because the amount of business that those independents were taking away from us would necessitate our taking such action in order to hold the business we had. That might be one of the factors. Now, there are a great many factors.

Mr. BERGE. You wouldn't want to say that it was ever done for the purpose of eliminating independent competitors?

Mr. PEW. No; certainly not.

The VICE CHAIRMAN. Gentlemen, I have been holding off on account of the continuity of the questions on the same point, but it is now a quarter of 1. I think we had better recess until 2:30.

(Whereupon, at 12:45, the committee stood in recess until 2:30 p. m. of the same day.)

AFTERNOON SESSION

(The committee resumed at 2:30 p. m., on the expiration of the recess.)

Acting Chairman REECE. The committee will come to order, please. Before we proceed with the witness, I have received some data for entry in the record in connection with the study made on distilled spirits, and it may be admitted.

(The data referred to were marked "Exhibit No. 1172" and are included in Hearings, Part 6, appendix, p. 2748.)

Acting Chairman REECE. Likewise, some data which Dr. Lubin requested yesterday has been submitted by the present witness and will be admitted.¹

(The data referred to were marked "Exhibit No. 1173" and are included in the appendix facing p. 7512.)

Acting Chairman REECE. Are you ready to proceed?

Mr. Cox. I have a few more records, while we are putting material in the records. I wonder, Mr. Pew, if you will be kind enough to furnish the committee with the list of 117 companies which you referred to in your statement as being wholly or partially integrated? It is not necessary to read it; just put it in the record. And at this time I should also like to offer for the record a chart which is based entirely on the material which was contained in the statement submitted by Dr. Ise on the first day of the hearing. This chart is merely a representation of statistics with respect to concentration which were contained in a table of Dr. Ise's statement. We have simply taken the table and placed it in chart form. It purports to show the degree of concentration existing in various branches of the industry at various times between the years 1936 and 1938. It does not cover all of that period, but because of the difficulty of obtaining comparable statistics some of the compilations were made as of one year and some of another. The table to which I refer appears in the record for September 25, and this is the chart which I should now like to introduce.

Acting Chairman REECE. It may be admitted.

(The chart referred to was marked "Exhibit No. 1174" and is included in the appendix facing p. 7512.)

Mr. Cox. Mr. Pew, so that we may have it for the purpose of considering this pipe-line question, can you tell us whether in the case of your own company the pipe-line rates which you charge are higher or lower than the rail rates for the same haul?

Mr. Pew. Of gasoline?

Mr. Cox. Yes; let's start with gasoline.

Mr. Pew. It is very much lower.

Mr. Cox. Is that true also of crude oil?

Mr. Pew. Very much lower.

Mr. Cox. Is it your opinion that that is true generally throughout the industry, that the rates which are charged by the pipe lines are lower than the rail rates?

Mr. Pew. Generally speaking, yes.

¹ P. 7213, *supra*.

Mr. Cox. It is true?

Mr. PEW. It is true.

Mr. Cox. You understand that I am speaking of rates now, not cost?

Mr. PEW. Quite.

Mr. Cox. Mr. Pew, you have spoken about the decline which has taken place in the retail price of gasoline. You mentioned that in the statement which you read. Do you have any opinion as to the factors which are primarily responsible for that decline?

Mr. PEW. I think you have put the question very well. It is a question of opinion. I think I expressed yesterday that I thought that perhaps one of the most important factors, particularly in the territory in which we operate, was brought about by the conditions obtaining during the N. R. A. I think that was the start of the decline in the earnings of the filling stations.

Mr. Cox. That certainly was the beginning, in your opinion, of the soft condition in the marketing end of the business; is that correct?

Mr. PEW. Yes. Our filling stations had, as near as we could determine, shown a very satisfactory earning prior to the advent of the N. R. A. and during the first year of the N. R. A. In 1934 when some of the dealers violated the provisions of the N. R. A. and took away our business by what they called under-canopy cutting, the profits in the whole filling station structure went down.

Mr. Cox. You are inclined, then, to view the decline in the retail price of gasoline which has taken place over, say, the period between 1928 and the present time as being caused largely by competition in the retail distribution; is that true?

Mr. PEW. The price decline that has taken place as the result of the reduction in the dealer's margin, or the difference between what the dealer paid for his gasoline and that which he sold it for to the public, has resulted in a reduction in the price of gasoline. But, of course, that is not by any means accountable for the entire reduction in the price of gasoline to the public.

Mr. Cox. What are the other factors?

Mr. PEW. For instance, if I may continue, sometime ago I made a careful study of just this situation in the territory in which we do business, and I found that, as between 1929 and 1938, the volume of gasoline sales had increased 42 percent, and the total amount of money that the industry received for that increased business was just 0.64 percent less in dollars.

A part of that, it is true, occurred as the result of somewhat lower differences obtaining as between the price which the dealer paid for his gasoline and the price at which he sold it, but most of that difference was due to technological improvements which occurred within the industry and which were passed on to the public by way of lower prices.

Mr. Cox. In what branch of the industry precisely do those technological changes occur? Are you thinking primarily of refining?

Mr. PEW. No; I am thinking of a great many things. If I may start back with the crude, today we have crude which is selling around a dollar a barrel. In the 10-year period prior to 1915 the average price

of crude oil was 72 cents a barrel. During that intervening period wages increased by or over 180 percent, so that today the wages being paid are almost three times what they were in the earlier period. Tremendous increases have taken place in all of the material that goes into the drilling of a well. As a result of conservation policies, crude oil is being produced at a tremendously reduced cost as compared with the earlier period. That improvement has resulted from technological improvements within that activity of the industry. Great improvements have been made in methods of operation of the pipe lines. It used to be that a pipe line was laid and at certain points along the road tanks were installed and the oil was pumped from one tank at one point to another tank maybe a hundred miles along the road and then another pump took it out of that tank and pushed it along and it went into another tank. Today we have centrifugal pumps which keep that oil moving continuously, with no interruption. That and other technological improvements in the pipe-line operation have resulted in a great saving. Now, we come to the transportation by boat. I think I pointed out yesterday that during my connection with our company I have seen transportation costs by boat come down from a high of 36 cents a barrel to a present cost of 11 cents. Those reductions have been made as a result of technological improvements in the building of ships. I could take the time of this committee describing what those improvements have been. Part of them have come through better design in the hull of the ship; much of it has come from improvement in economy of engine design. Some of it is due to the fact that the ships are larger, but all of it is due to the technological improvements which the industry has developed.

As to refining, perhaps the greatest advance has been made in technology. The plant which last year was efficient and economic, which we all thought was the last word in a plant, may this year become obsolete. In our own company, we have just completed two plants. They cost us well over \$12,000,000. We just didn't have \$12,000,000 to put into those plants, but we felt the need for them was so keen that we went to the bank and borrowed the money to build them. In fact, we have spent in our company about \$14,000,000 each year for the last 3 years in making technological improvements within various activities of the business, all designed to reduce the cost of our refined products, particularly so as to enable us to put the gasoline into the cars of the consumers at the lowest possible price. Now, we haven't done that all because we were altruistic. We have done it because we hoped to get our money back by way of increased business, but my studies of the industry, the technologic improvement that has obtained throughout the industry, have shown that every improvement has been passed on to the public by way of lower prices.

Mr. Cox. Would it be fair to say that one reason that you have made these attempts to increase your own efficiency has been because the competition which exists in the industry has been a continuous incentive to you?

Mr. PEW. Without question.

Mr. Cox. To make those changes?

Mr. PEW. I think the urge of competition is a great factor in developing the technique of any industry.

Mr. Cox. In your opinion did the increase in the supply of crude oil, beginning in 1930 and 1931, have any effect upon the retail price of gasoline?

Mr. PEW. I would say very definitely that if we hadn't developed conservation policies and applied that technique to the development of the oil industry the price of gasoline would have been much higher, on the average—there would have been low points and there would have been high points, but on the average unquestionably the price of gasoline is very much lower than it would have been under the old techniques.

Mr. Cox. I am afraid that answer isn't quite responsive to my question. (The question was read.)

Mr. PEW. I don't think I understand the question.

Mr. Cox. Well, I will put it in another way. Did you hear Mr. Gill's testimony on Monday?

Mr. PEW. Yes.

Mr. Cox. Do you recall that he had a chart—I think it was No. 6¹—which compared the wholesale commodity prices with the wholesale refinery prices for petroleum products, and Mr. O'Connell asked him some questions about that chart, and I am going to read to you a portion of that testimony to see if you agree with the statements which were then made. Mr. O'Connell said:

Would it be fair to say, then, that the substantial decrease in the total price, or in the average price of petroleum products from 1926 to 1938 is explainable by the greatly increased supply of crude oil?

Mr. Gill replied:

I think, Mr. O'Connell, that was an important factor but by no means the sole factor.

Now, all I want to find out from you now, Mr. Pew, is whether you agree with Mr. Gill that that was an important factor.

Mr. PEW. I would say so, yes; although I want to qualify that by saying that I am not sufficiently familiar with those charts and the exact dates at which these changes were made to discuss it intelligently.

Mr. Cox. I will be glad to show you the charts. This chart, I think, is the one they were talking about.

I think the question that Mr. O'Connell asked was about that drop in 1931.

Mr. PEW. The price of gasoline depends very largely on the price of the crude oil. But the price of gasoline or other petroleum products is not determined entirely by the price of crude in a particular area. The consumer demand and producer competition have a very important bearing on price. So I would only say to you that over a long period of time it is fair to assume that there is a relationship between the price of crude oil and the petroleum product prices, and over a long period of time it may be assumed that the average product prices would approximate the total of the crude prices plus the costs of operation, plus reasonable profit.

Mr. Cox. May I assume from that answer, then, that your opinion is that over a long range the price of the products to the consumer would tend to go down as the supply of crude increases, assuming

¹ "Exhibit No. 1146," appendix, p. 7494.

that the increase in the supply of crude means decrease in the price?

Mr. PEW. I would say over a long period of time; yes.

Mr. Cox. And would you also agree that any decrease in or limitation on the supply of crude which resulted in an increase in the price of crude, tended over a long period of time to increase the price to the consumer?

Mr. PEW. I would.

Mr. Cox. Mr. Pew, in your experience and observation, has there been any uniformity of policy among the major integrated oil companies?

Mr. PEW. There are a great many—it seems to me that question covers a pretty broad field. Can't we reduce that?

Mr. Cox. I will reframe it and see if it makes the answer easier. We have been talking here in the time in which you have been testifying about a number of economic problems. Has it been your observation that with respect to their attitude toward those problems there has been any uniformity of policy on the part of the major oil companies?

Mr. PEW. That would be a matter of opinion; I just don't know.

TRANSPORTATION POLICIES OF INTEGRATED COMPANIES

Mr. Cox. Well, let's consider some particular matters. This morning there were some questions asked about the desirability of divorcing the pipe lines. Would you say that all of the major integrated companies took the same point of view about the wisdom of that proposal?

Mr. PEW. I would definitely say so.

Mr. Cox. Would you say that all of the small nonintegrated independent refineries took the same attitude with respect to that question that the major companies do?

Mr. PEW. I would say the great majority of them take the same attitude that the majors do—so-called majors.

Mr. Cox. But in your opinion there is a minority of them sufficiently misguided to take a different view? I am just trying to find out if there is unanimity. You think there isn't among the smaller producers?

Mr. PEW. I think there is a very small minority.

Mr. Cox. And take the question as to the desirability of enacting a commodities clause with respect to the pipe lines; you understand what I mean by that? I take it that the major integrated companies take the same point of view about that?

Mr. PEW. Essentially so because they look upon their pipe lines as a plant facility.

Mr. Cox. And is there some group among the smaller independent refineries that takes a different view of that?

Mr. PEW. I can't testify definitely on that. I understand there have been a few that take a different viewpoint on it, but that the great majority are hopeful some day of having their own pipe lines, and they take the same view that I would take. A great majority of them.

Mr. Cox. Now, take also the matter of railroad rates. I think you testified yesterday that for the most part you used the railroads only

for short hauls. That is also true of most of the larger integrated companies, is it not?

Mr. PEW. No; I wouldn't say that is true. I think some of the major integrated companies ship much further than we do.

Mr. Cox. I have no doubt of that, but if I should suggest that taken generally, the hauls are shorter than the hauls of the smaller nonintegrated units in the industry, would you agree with that?

Mr. PEW. No; most of the so-called major companies are not equipped with pipe lines to distribute their gasoline.

Mr. Cox. Will you read the answer?

(The reporter read the answer.)

Mr. PEW. If I may continue that, consequently that puts the so-called independent companies in exactly the same position as the major companies who do not own or have facilities for pipe-line distribution of their products.

Mr. Cox. You think then as between the major companies and the independent companies there is no difference as to the length of their hauls, so far as railroad traffic is concerned?

Mr. PEW. In our case, having a gasoline pipe line, we would not ship as far as those companies which are not so equipped. As to the rest of the companies, whether they be the so-called majors or the so-called independents, I can see no difference.

Mr. Cox. Well, to the extent that other companies than your own have gasoline pipe lines, for example, those gasoline pipe lines are owned and used by major companies, are they not?

Mr. PEW. Yes.

Mr. Cox. So that at least so far as those companies are concerned, they would not have the same occasion for long railroad hauls as the small independents would.

Mr. PEW. Quite right.

Mr. Cox. Isn't it a fact, Mr. Pew, that the policy of the major integrated companies, so far as railroad rates are concerned, has been consistently to object to any reduction in long-haul rates while at the same time consistently favoring reductions in short-haul rates?

Mr. PEW. I wouldn't say so.. On the contrary, it has always been my policy, the policy of our company, to bring about a reduction in rates irrespective of the distance, provided it would enable us to obtain a delivery of the product at a lower cost.

Mr. Cox. Assuming that that has been the policy of your company, has it not been the policy of some of the larger integrated companies consistently to oppose reductions on long hauls, so far as petroleum products are concerned?

Mr. PEW. I can't tell you what the policies of the larger companies are as a whole, but I do know that many of the larger companies are taking exactly the same attitude that I have, that we are not particularly interested in the method of distribution, but we are very much interested in the cost of that distribution. If the railroads will carry oil for our company cheaper than we can move it by pipe lines, we will deliver all of our business over to the railroads.

Mr. Cox. Of course, on the other hand, if you can use the pipe line while someone else has to use a railroad at higher rates, that gives you an advantage, doesn't it? I am not speaking of your company but of the major companies generally.

Mr. PEW. They all have the use of our pipe line if they want to make use of it.

Mr. Cox. We have a map here in the record of the gasoline pipe lines, which shows that one direction in which they run is from some of the midcontinent fields toward the marketing area in the Central States. The answers to the questionnaires also showed that those gasoline pipe lines are used almost entirely by the major integrated companies. To the extent then that any other company wishes to compete for that market and move gasoline into that market, it has to use more expensive means of transportation, does it not?

Mr. PEW. That would seem to me to depend entirely on what the rates happen to be by the two methods.

Mr. Cox. I think you testified a little while ago that generally speaking the pipe-line rates were less than the railroad rates.

Mr. PEW. Yes, I did; but that was a very general statement. I didn't say that in all cases it was cheaper.

Mr. Cox. Are you suggesting, then, that so far as the particular pipe-line operation which I am speaking of—let's take a specific example. Suppose on this map, which is included in "Exhibit No. 1138,"¹ gasoline is going to run in a pipe line from Tulsa up to St. Louis, which, I take it, would be possible on this map. Are you suggesting the pipe-line rate for that transportation is as high as the railroad rate?

Mr. PEW. I don't know what it is.

Mr. Cox. A little while ago you said generally you thought they were lower.

Mr. PEW. They are generally lower. Now you are asking me a specified question.

Mr. Cox. Do you have any doubt that, generally speaking, those gasoline pipe-line rates from the midcontinent field to points in the eastern marketing areas, are cheaper than the railroad rates?

Mr. PEW. My recollection is that they are the same.

Mr. Cox. That is very interesting, because if they are the same, and assuming that the cost of transportation is less by pipe line than it is by rail, that means that anyone who doesn't own the pipe line and is using it is not enjoying the advantages of the cheapness of that method of transportation, is he?

Mr. PEW. Would you read that question again?

Mr. Cox. Perhaps it is a little involved.

(The reporter read the question.)

Mr. Cox. I am not very pleased about that question. We will strike that out and we will ask the question again.

Assume that the pipe-line rates are the same as the rail rates and that the shipper we are speaking of pays those rates and is not the owner of the pipe line, doesn't that mean that he is not getting any advantage from the cheapness of that particular method of transportation?

Mr. PEW. Again it all depends on how much it is costing the owners of that line to put the gasoline through to St. Louis. If the rates established are reasonable rates, then I would say that the independent who used that line was not at a disadvantage, because he would be getting the use of the other man's capital and not paying an exorbitant

¹ Appears in Hearings, Part 14-A, facing p. 7728.

price for the use of that capital. Now, if, on the other hand, those rates are unreasonable, then I would say definitely that he is at a disadvantage.

Mr. Cox. I assume from your testimony yesterday that, even taking into account return on the investment, the cost of transporting gasoline by pipe lines was much cheaper than the cost of transporting it by rail.

Mr. PEW. I made such a statement.

Mr. Cox. And, of course, if you own the pipe line, you are transporting your gasoline at cost, including a return on your investment.

Mr. PEW. But you remember in the development of that statement I explained that the costs that I exhibited were our own costs, and the costs I set up for the railroad were the established rates, which included their profit.

Mr. Cox. Yes; that goes to the point that interests me now, because we are imagining a situation in which an independent pays for pipe-line transportation the equivalent of those railroad rates, although the cost of the pipe-line transportation, including a reasonable return on investment, is much less.

Mr. PEW. I think it is entirely a question of fact. If the railroad rates have been reduced to a point below the railroad's cost, it might conceivably be that the pipe lines did have a reasonable rate. I don't know what the facts are. All I can say is if that pipe-line rate—I don't know, because I have never explored the situation—if the pipe-line rate from Tulsa to St. Louis is an unreasonable rate, then the independent shipper over that pipe line is at a disadvantage.

Mr. Cox. But you think he is not at a disadvantage if the rate is reasonable but as high as the railroad rate?

Mr. PEW. If it is a reasonable rate and as high as the railroad rate then he is not at a disadvantage.

Mr. Cox. Even though the actual cost of the pipe-line transportation, including a reasonable return on investment, may be much less than the railroad rate?

Mr. PEW. Now you are bringing up another point.

Mr. Cox. That is the point that interests me. I would like to get an expression of opinion on it.

Mr. PEW. If the established pipe-line rate from Tulsa to St. Louis is a reasonable rate, then the independent can ship his gasoline through that line and pay that rate and not be at a disadvantage with those who own a pipe line.

Mr. Cox. Well, if he does so, he gets the gasoline at the end of the pipe line at a cost which is considerably in excess of the cost incurred by the owner of the pipe line moving his gasoline through?

Mr. PEW. Only by the amount of a fair return on our capital; and when you can use the other man's capital without paying for it more than a reasonable return you are in just as good a position as the other man.

Mr. Cox. You are assuming, and I am assuming, too, when you talk about a reasonable rate, a rate which returns just a reasonable income on the investment committed to that sort of enterprise?

Mr. PEW. A rate which returns a reasonable return on the investment and which is high enough to attract new investments into that particular line of activity when they are required.

Mr. Cox. Would you care to express an opinion in the case of pipelines as to what kind of rate of return that should be, Mr. Pew?

Mr. Pew. Well, I think I would be stepping on the toes of the Interstate Commerce Commission. Frankly, we have a very interesting problem. We built a pipe line out to Cleveland; did it for the purpose of getting our gasoline into that territory. As a result of the development of the Illinois field, the whole economic picture is changed, and we have now built a plant to handle that western business. No longer will it be possible economically for us to use that line for that western business. We are going to be faced with a probable or possible loss in connection with that line. I am going to ask the Interstate Commerce Commission to review that situation and determine a rate. I don't know what it ought to be, and I don't know what our future policy will be, and so I am very happy to lay it right at the doorstep of the properly constituted Government authority, which is the Interstate Commerce Commission.

Mr. Cox. You don't feel like expressing even any opinion whatsoever generally as to the rate of return, apart from that specific case?

Mr. Pew. I think the best evidence that the rates were too high is that a year ago action was taken looking toward the reduction of those rates, and I think, too, that there have been a number of reductions that you gentlemen haven't got the data on.

Mr. Cox. We understand there have been progressive reductions of rates on pipe lines.

Mr. Pew. For instance, I have been told here since yesterday that the survey in Texas will show that the average return of the pipe lines, based on the appraisal by the Interstate Commerce Commission, will show a return on investment of about 9 percent.

Mr. Cox. You think that is a reasonable return, that kind of business?

Mr. Pew. I don't want to criticize the Interstate Commerce Commission. I don't think you ought to ask me to.

Mr. Cox. I am not asking you to criticize; I don't think you would be. They might very well be interested in your opinion.

Mr. Pew. If the Interstate Commerce Commission wants me to express an opinion, I will be very glad to do so.

Mr. Cox. But you don't feel that you want to express an opinion now?

Mr. Pew. I don't think you ought to ask me to.

Mr. Cox. Would you express an opinion as to whether that rate was too high?

Mr. Pew. No. I hope you won't ask for that.

Mr. Cox. Well, if you feel that way about it, I won't ask you. I have asked you these questions about policy in an attempt to find out whether or not, in your opinion, on general matters of policy the industry is divided into two camps, one of which you find has largely integrated companies, and in the other you find the smaller nonintegrated companies. Is it your opinion that that condition exists?

Mr. Pew. I would say that it does not exist. That the large majority of the smaller companies feel toward this general question just as do a majority of the larger integrated companies.

Mr. Cox. There may be a dissenting minority, but you think that isn't large?

Mr. PEW. I think you can always find in any group that the one who has failed in business, whether that be an independent business of his own or whether it be in connection with the services in some other person's employ, invariably he blames his troubles on somebody else or on some other thing.

Mr. Cox. Do you think that all of the complaints about the practices in the petroleum industry come from people who have failed in business?

Mr. PEW. Well, I would say that a large majority of them certainly come from such sources.

Mr. Cox. And that is true through all the branches of the industry, beginning with production and going through?

Mr. PEW. I am giving you my opinion.

Mr. Cox. That is all that you can give us. I understand that. Do you think there is anything that the industry itself could do to protect the existence of the small integrated companies?

Mr. PEW. The small integrated companies?

Mr. Cox. The small nonintegrated companies.

Mr. PEW. I made the suggestion this morning, which I hope your committee will seriously consider, and that was to conduct a study with a view of determining just how many small operators who have come into the business during the last few years have tremendously increased their business. It seems to me that is the only real yardstick with which to arrive at the point which seems to be of great interest to you.

Mr. Cox. Suppose that study should show that in fact there has been an increase in the number of small units operating in the industry, in your opinion are there any steps that might be taken to encourage that trend, either by the industry itself—

Mr. PEW (interposing). I think that our competitive conditions must control; it seems to me that a man must necessarily have some ability; he must show some engineering knowledge; he must be keen and alive to all the problems of the industry. I wouldn't say that we ought to subsidize anybody who wants to come into the industry, irrespective of his capacity.

Mr. Cox. I wasn't suggesting a subsidy; I was just wondering if there were any other things you had in mind. I take it you think the most important thing is to maintain free competitive markets in all branches of the industry?

Mr. PEW. I do.

Mr. Cox. You wouldn't agree, then, with the people who think that the antitrust law should be amended in some way so as to permit agreements in the industry for the purpose of regulating marketing practices?

Mr. PEW. I think the surest way to destroy the petroleum industry is to adopt a cartel system.¹

Mr. Cox. That you would, I take it, then, believe that the antitrust law should be left unimpaired and should be enforced if we are to preserve—

Mr. PEW (interposing). Very definitely. I think there is the machinery in the antitrust laws to accomplish every proper purpose.

¹ Testimony on "Cartels" appears in Hearings, Part 25.

On the other hand, I think that the Government should set up machinery in order to enforce those laws.

Mr. COX. And you feel that if those laws are enforced intelligently and vigorously that free competitive markets will exist in which small enterprise can succeed?

Mr. PEW. I do.

Mr. BALLINGER. Mr. Pew, when you suggested that the committee make a study to see how many new competitors have come into the business, do you mean to make a study on the refining end of the business to see how many new refiners have come in?

Mr. PEW. Yes, sir.

Mr. BALLINGER. You think that would show that any new refiners have come in?

Mr. PEW. I haven't the figures.

Mr. BALLINGER. You say you have?

Mr. PEW. I have not the figures.

Mr. BALLINGER. As a matter of fact, hasn't there been a steady decline in the number of refiners in the last 15 years?

Mr. PEW. I haven't those figures.

Mr. BALLINGER. Well, if it were shown, if we made a study of that and found that a lot of new competitors had come into business for producing oil that wouldn't be very significant if there had been a number of new discoveries of oil, would it, and after all as I understand it, only about 3 percent of the total land in the United States suspected of having oil has been under active utilization. Still a lot of opportunity to find a well, but after you get it sometimes it is a little difficult to do something with it.

Mr. PEW. I think it would very definitely show there was an opportunity there. If a large number of new independent operators had come into the industry.

Mr. BALLINGER. Now, I want to go back just one more question, Mr. Pew, when did your company acquire pipe lines?

Mr. PEW. 1904.

Mr. BALLINGER. Well, this morning I understood you to say that your criticism of the old Standard Oil trust was mainly because of the preference shown the trust by the railroads, was that it?

Mr. PEW. Yes.

Mr. BALLINGER. Well, I thought that had ceased pretty much in the oil business by 1900. Wasn't the law which outlawed rebates and drawbacks passed about 1903?

Mr. PEW. I can't tell you; I don't know.

Mr. BALLINGER. I thought it had ceased pretty much with the dissolution of the old South Improvement Co. of the Standard Oil trust, way back in 1872 or 1875.

Mr. PEW. No.

Mr. BALLINGER. It hadn't?

Mr. PEW. No. No, very definitely.

Mr. BALLINGER. The contract was abandoned by the Standard Oil Co.?

Mr. PEW. My father was tremendously interested in the south Texas oil field, which was brought in at Spindletop. He saw an opportunity there to go into the oil business in a larger way and be free of railroad domination. That was the inspiration for our

company going into the Texas field. Not only that, but he was so anxious to avoid the use of our railroads that he went into the south Texas oil field and bought some oil production and arranged for pipe lines to pick it right up there in the Spindletop field, which was within a few miles of water transportation. He built a refinery at Philadelphia and then he went to Europe to get his distribution, all for the purpose of avoiding the railroad.

Mr. BALLINGER. What year was this?

Mr. PEW. This was in the early years of 1900.

Mr. BALLINGER. Well, I thought in those early—

Mr. PEW (interposing). The first decade of this century.

Mr. BALLINGER. I thought the question of rebates and drawbacks had been pretty well ironed out. I will look up the subject more thoroughly, but that was my impression of it.

Mr. PEW. I think in a few years after that it was perhaps ironed out, but the conception of going into that business had its inspiration in that of avoiding the use of the railroads.

Mr. BALLINGER. But after that was ironed out there was still a period of years in which the Standard Oil trust was still going on; you were still critical of it even after that was ironed out?

Mr. PEW. My memory doesn't—I was in overalls down at the plant in those days; I just can't tell you.

Mr. BALLINGER. Well, I mean weren't you really opposed to the Standard Oil trust because of its control of pipe lines, one of the basic reasons you were opposed to it, or your company?

Mr. PEW. Well, at that time we had our own lines and our own connections with the Spindletop field. We weren't particularly concerned about the other fellow's pipe line. But very definitely the control of the transportation. Now, that included the railroads. I think that our feeling and my father's feeling particularly had to do with the shipment by rail. You see every barrel that he shipped by rail, a part of that money was taken out of the pot and turned over to the Standard Oil Co.

Mr. BALLINGER. When you got your pipe lines you didn't have any criticism?

Mr. PEW. That wasn't a very pleasant way for him to think over his business at night when he got home and started to contemplate on the day's work, was it?

Mr. BERQUIST. Isn't that exactly the way some of the independents feel when they ship over pipe lines?

Mr. PEW. That is exactly the way he feels if he is paying an exorbitant rate for it, but if he is getting his oil shipped at a reasonable rate, a rate based on the investment of that line, and somebody else is putting up the capital for him, why, he ought to be just tickled to death because he is enabled thereby to do more business on less capital than would be the case if he had to put in his own line.

Mr. BERQUIST. Let's consider, then, what he might think. An independent refiner or independent refiners generally are located usually in the field or near the source of supply of crude. Let us contemplate what he would think when he considers that, if he wants to get into a market and sell gasoline, and having produced it near the field, and wants to get it, say, into Chicago markets or at Minneapolis or some other point where, say, two important gasoline pipe lines—the Phillips

and the Great Lakes—happen to run; and he finds that their rates are about the same as the railroad rates, so it wouldn't make much difference which way he shipped, but he notices that the Great Lakes pipe line could make a net return of 31 percent and the Phillips pipe line could make a net return of 42 percent. Mind you, those are both lines that were built and completed in 1931, so they can't be fully depreciated yet, the base can't be so small; and he must have a great deal of food for thought in that situation. ,

Mr. PEW. If I were in his position and I made up my mind that was too high a rate, I would feel rather bitter about it; but, on the other hand, we must not forget that that man has located his refinery there to take care of a certain sphere which isn't touched by these other pipe-line companies. He has got a great range of country to which he can distribute his products without going into the Chicago market; and he never intended, when he built that plant down there, to go into the Chicago market. Now, I would like to say just one other thing. I understand that any of these independents can purchase a pro rata share in that line at a fair value. In other words, he can buy a pro rata interest in that line which would put him on exactly the same basis as the other shipper.

Mr. Cox. You mean the Great Lakes pipe line?

Mr. PEW. I should like you to research that point a little bit. I shouldn't comment too strongly on it because I am not familiar with the facts.

SIMILARITY IN FINISHED GASOLINE

Mr. BERGE. Mr. Pew, I would like to ask whether it is the practice in the business of the major integrated companies to exchange with each other processed gasoline, finished gasoline, gasoline that is ready to be put on the retail market?

Mr. PEW. Well, I am unable to go into that matter with you because our company has never made a practice of it.

Mr. BERGE. Sometimes when one company has a temporary surplus and others have a shortage, could it be done?

Mr. PEW. We have never done it.

Mr. BERGE. You have never purchased any gas from a refinery that another company has processed?

Mr. PEW. Oh, yes; we have bought gasoline from other companies and brought it into our refinery and we have mixed it with our other gasoline or we have reprocessed it ourselves to bring it up to our quality. We have never exchanged our gasoline and shipped out the gasolines which would have been received from such exchange.

Mr. BERGE. When you have bought gasoline from other companies, then, do you mean that you have always subjected it to some further processing?

Mr. PEW. In every case.

Mr. BERGE. Or merely tested it to see whether it is up to your specifications? If you buy high-grade gasoline and it has been properly refined out of good crude oil and been done in the plant of an equally reputable company, why should it need further processing?

Mr. PEW. It so happens that we have never bought any gasoline that exactly met our specifications. We have always had to process it or blend it to make it meet our quality.

Mr. BERGE. Are you prepared to say that there is a chemical or physical difference between the gasoline which you may sell and that which your competitors may sell? I am not calling for an expression of opinion as to the merits of respective gasolines, but rather as to differences. Are the gasolines that are retailed by the major companies chemically and physically different, or isn't there a substantial similarity between many of the brands?

Mr. PEW. I think that you have given me a rather hard undertaking to describe. In the first place, all of the specifications for petroleum products are of value largely as an indication of their quality. You can't definitely determine by any known specification the exact quality of a gasoline. If, however, we produce gasoline from exactly the same crude oils month after month and they all meet exactly the same specification, in all probability those gasolines will be substantially the same and will give exactly the same performance.

Mr. BERGE. You mean the gasoline you produce and that somebody else produces?

Mr. PEW. The gasoline that we produce in our own plant, run from the same crude oils, tested by the same methods, will give substantially the same performance when used in a car.

Mr. BERGE. You mean that your gasoline will from month to month give substantially the same performance, is that what you mean?

Mr. PEW. If obtained from the same fields and subjected to the same technological refining processes.

Mr. BERGE. I am assuming, which I suppose we have the right to assume, that there are a number of companies who earnestly try to meet high specifications and to the best of their abilities apply rigid tests to get gasoline of good quality, good crude, and apply high-grade processes to it and turn out a high-grade product. And I was trying to find out whether there is any substantial difference between the gasoline that companies of the type I have described would put out. I am not trying to rate them or grade them relatively at all, but are there differences?

Mr. PEW. Oh, very definitely there are many differences. After all, the only way that you can make a correct analysis of any petroleum product is that of determining every hydrocarbon that is contained in that product. Now there are hundreds of different hydrocarbons contained in every drop of oil. It takes years to isolate four or five of them. These hydrocarbons that are contained in a finished product, when manufactured from the same crude in the same refinery, and which meets the same specification, turn out probably a product which will give the same performance in use.

But if, on the other hand, we make this product up out of entirely different crudes, subject them to an entirely different refining process, then you have an entirely different set of hydrocarbons in your finished product and they will not react the same way when subjected to the tests which we know as specifications.

Mr. BERGE. Can't we assume that at least some of the major companies, and perhaps many of them, use crudes from the same fields, or fields where the crude is substantially similar and refined by substantially the same processes? After all, there are a lot of companies in this game and to a layman, it wouldn't seem that there would be a necessary variance between the process of every company. Now

I can see that you might draw very highly defined technical distinctions, but from the standpoint of practical service and worth of the product there must be substantial similarity between the leading brands of gasoline. They may have differences, but is the motorcar so refined in its reactions and responses that there would be difference in performance from each of the several dozen different leading brands of gasoline?

Mr. PEW. May I answer that this way: We obtain our crude from 30 or 40 different oil fields. We try to run substantially the same percentage of all those crudes each month. We subject our products to the most careful analyses. We have hundreds of men in our laboratory making these tests, keeping control of it every few minutes, 24 hours a day. And yet, when we get all through, we put that gasoline in a big tank and we have a number of cars, the same kind of cars that you and I run on our highways, and we put that gasoline in the cars and take it out and make a test before we finally say that the consumer may use it.

Mr. BERGE. Now without meaning any disrespect to your company, wouldn't the processes of many other companies be substantially the same?

Mr. PEW. Well, I don't know.

Mr. BERGE. Again speaking without reference to any particular—

Mr. PEW (interposing). I beg your pardon, I didn't quite understand your question. I understand it now. You say, Wouldn't the processes be the same.

Mr. BERGE. Substantially the same.

Mr. PEW. My answer to that is "No." The qualities of gasoline largely are obtained as the result of some one or other cracking process.

Mr. BERGE. Those processes are freely licensed back and forth.

Mr. PEW. Those processes are used by most of the companies. But there is a wide variety in the type of process that these companies use. Now for instance, the cracking process that we use ran our pressure in some cases up to 2,300 pounds, and we put the oil through at a temperature of 920°. Some of the other companies run it through at 450 pounds. That produces an entirely different series of hydrocarbons. And so my answer to that is that there is a wide variety in the processes which these various oil companies employ.

Mr. BERGE. Is it your belief that each of the commonly advertised brands—and I am confining my question to brands that are commonly believed to be good brands—each have unique qualities that none of the others possess?

Mr. PEW. That subject has been very carefully researched by Mr. Swensrud.¹ He has studied the whole problem from every angle. I am not really prepared to discuss it. In fact, I have never read the advertisements that are put out by these other companies. [Laughter.]

Mr. BERGE. I would like to ask you then whether it is your opinion that in the competitive struggle, the purchasers to whom you appeal buy your gasoline rather than somebody else's because of the unique qualities they think your particular gasoline possesses, or for some other reason. Now since the price is substantially the same at most

¹ Mr. Swensrud's testimony appears in Hearings, Part 15.

times—as you said this morning, when one company reduces the others reduce. and if one company goes up, unless the others soon follow, it goes back again—the retail purchaser of gasoline doesn't have much of a choice in a particular community as to price, and I was just wondering then what you thought did lure him to your product.

Mr. PEW. Well, price is one factor, of course.

Mr. BERGE. Let's assume that the price is the same.

Mr. PEW. But the other factors are the service that is rendered.

Mr. BERGE. You mean the service incidental to the sale of gasoline?

Mr. PEW. Yes; the courtesy of the filling-station attendant.

Mr. BERGE. I was just wondering if maybe that wasn't about all there was to it, if the motorist didn't in some instances regard the leading brands as the same, or in those cases where he thought one was peculiarly a favorite, it wasn't because of the advertising rather than because of any innate difference.

Mr. PEW. In all due modesty, I may tell you it is my opinion that our gasoline is the best on the market. [Laughter.]

Mr. BERGE. I would expect you to think so, and I am not trying to get you to express any other opinion than that. That is not my thought at all. But I am trying to find out whether the business hasn't been so highly developed by so many different companies employing sound processes that there really wasn't very much left to competition except the services that they might render incidental to the sale of gasoline at the service station, or the conflicting myths that are built up in people's minds around the advertising.

Mr. PEW. I think you have got an erroneous conception of that picture, if I may say so.

Mr. BERGE. I would like to get that straightened out.

Mr. PEW. In the first place, I think that the measure of merit of an industry—and after all we are talking about the petroleum industry—can best be determined by the yardstick of progress over the years, progress by way of improved service, progress by way of improved quality, progress by way of reduction in the prices of its products, and progress, too, in the treatment of its employees.

Now by all of these yardsticks I feel that the oil industry stands at the head of the list.

Now I am coming to that. You take this question of advertising. Lots of people think we spend too much money for advertising, but it is the very fact of the advertising programs of the various companies that has stimulated technological progress designed to improve the qualities of their respective products. Ten years ago the gasoline was of such a quality that it just wouldn't run in your car today for a block. It would just tear the engine all to pieces. I attribute the most of that development to the advertising policies of the various companies.

You can't have a mass-production industry unless that industry has a mass market, and I think that if you would study this problem you would find that that mass market was largely developed as the result of the advertising policies of those companies whom you regularly see using our newspapers and periodicals in their advertising.

Mr. BERGE. Don't misunderstand me. I wasn't implying any criticism of the advertising policies of the companies. I would be willing

to see the necessity for advertising. What I was simply trying to find out was whether there were in chemical and physical facts sufficient intrinsic differences in gasolines to warrant the belief that is built up among motorists that there is really a difference in performance between the major brands. It seemed to me that most of the major companies were putting out a product that rendered a substantially good service, and I thought if that was so, that this advantage that you said yesterday that the independent service stations had over the bigger companies, in that they could choose their brand, was really not so important, because there wasn't any substantial difference between the major brands. I don't know whether I make my question clear there or not, but as I understood you yesterday the principal advantage that the independent service-station operator has in your judgment is that he can pick and select what brand of gasoline he can sell. However, I don't care to press it further, because I see that you maintain that there is a substantial difference, so I guess we will have to let it rest at that.

MAJOR INTEGRATED COMPANY'S COMPETITIVE ADVANTAGE THROUGH TRANSPORTATION

Mr. BALLINGER (to Mr. Pew). You and your father were against rebates in railroads and thought it was a vicious system. Suppose the oil companies had owned the railroads, would that have been all right?

Mr. PEW. It may have been wrong if they had practiced the same schemes of rebating and draw-backs.

Mr. BALLINGER. If they had turned their profits over to the oil companies you would have gotten your rebates in the form of profits. Under the system where they didn't own the railroad you would have got your rebate paid out to you at once, but it would have come in under either system, wouldn't it?

Mr. PEW. I think it revolves around the point of the reasonableness of the pipe-line rates.

Mr. BALLINGER. Reasonable or unreasonable, I want to put an illustration up to you. Here is an independent pipe line. You are a competitor with this gentleman over here. The pipe line is giving him rebates and, say, draw-backs, if you want. You complained bitterly against that system. But if you could own the pipe line and get your rebates in the form of profits, you would say it was all right.

Mr. PEW. I think that we must visualize these pipe lines as entirely different from the old railroad systems that owned their coal companies. Our pipe lines are a part of our assembly line, just as much a plant facility as the assembly line of Mr. Ford when he runs his cars through and puts the various parts together on them. The problem, then, becomes one of utilizing our lines not only as a plant facility, but, on the side, to take care of those other people who want to make use of our lines. I say that because we are a common carrier; we are under obligations to carry the goods for the independent at a reasonable rate, a rate that he would be happy to pay us because it saves him the necessity of putting his money into a like facility. In fact, I think he is advantaged by it, because he couldn't build a line for his lesser quantity to carry the oil at anything like the price that he can get for it under these other conditions.

Mr. BALLINGER. Yes; but if he were shipping over a pipe line that didn't belong to you, he wouldn't be contributing; as I have said over and over and over again, this thing comes down to that; he is giving you something to fight him with. If he could ship over the railroads at equal rates with the pipe lines he then wouldn't be subsidizing you.

Mr. PEW. Then I would have that money to invest in some other industry, I would get a return on it, and I could use the return just the same as I could the return that I got on the pipe line.

Mr. BALLINGER. But you think there is essentially a difference between profits from a pipe line and rebates on railroads.

Mr. PEW. Very definitely—reasonable earnings, reasonable profits on a pipe line.

Mr. BALLINGER. Why not say "reasonable rebates"?

Mr. PEW. No; there is no such thing as a reasonable rebate.

Mr. BALLINGER. Well, you keep it down on the side of extortion, completely putting the other guy out of it; you let him linger on.

Mr. PEW. No; the rebate was an entirely different "breed of cats."

Mr. BALLINGER. To sum it up, I see it something like this: A prize fighter got into the ring and said, "I am ready to fight this independent refiner, but I want to introduce you to my two assistants who are going to participate in the struggle." This is your conception of fair competition. You are calling in pipe-line profits and profits from the other end of the business and going after the little refiner who is in nothing but the business of refining. It does constitute a differential against him. I don't see how you can get away from it.

Mr. PEW. I don't think it makes a bit of difference—excuse me for differing with you—whether that money is invested in a pipe line or whether it is invested in XYZ business. He still has the money, and he can still use it where he pleases.

Mr. BALLINGER. The XYZ business, I say, is entirely another matter. Most of the troubles we have with corporations today is this interminable urge or the part of corporations to get into another business, to find some way to wangle in on it, get favoritism, special privileges, pull wires in six or seven different direction. I think it would be good if the oil people stayed in the oil business, railroad people stayed in the railroad business, and steel people in the steel business.

Mr. PEW. I quite agree with you. Now you are talking about divorcing the pipe lines and making us take our money out of the business?

Mr. BALLINGER. Maybe there is an alternate proposal. Perhaps you can go on using the pipe lines, but we can prevent the differential I am speaking about from operating to the disadvantage of the independents—this differential of profits from pipe lines.

Mr. PEW. Then you want a reasonable rate.

Mr. BALLINGER. You still allow the differential. Suppose we have a reasonable rate, and 50 percent of the business is from independents and 50 percent your own company, and that 50 percent of profits is contributed by the fellows who hope to compete with you at the other end.

Mr. PEW. You want to subsidize the other fellow.

Mr. BALLINGER. You wouldn't subsidize him in the slightest. I would like to see to it that your profits from the pipe-line business are not used on the refining front or on the marketing front. However, I am afraid I have taken up too much time now, Mr. Pew. We could argue about this all night.

SHIPPING PRACTICES IN THE INDUSTRY

Mr. O'CONNELL. I should like to ask one or two questions. Do I understand that your company owns a fleet of tankers—oil tankers?

Mr. PEW. They do.

Mr. O'CONNELL. Do you operate them under the Sun Oil Co. or through a subsidiary company?

Mr. PEW. We operate about half of our fleet through the Sun Oil Co. and the other half through an organization known as the Motor Tankship Corporation.

Mr. O'CONNELL. Do all of your ships operate under the American flag?

Mr. PEW. They all do.

Mr. O'CONNELL. Are you familiar with the practice indulged in by at least one of the major companies of operating its tankers through a subsidiary corporation created under the laws of other countries and operated under a flag other than the American flag?¹

Mr. PEW. I am not familiar with it. I know that it is done.

Mr. O'CONNELL. You know that it is done?

Mr. PEW. Yes.

Mr. O'CONNELL. You don't know why it is done, do you?

Mr. PEW. Well, years ago we owned two or three British ships. We used those ships for carrying our products to Europe. It is impossible under normal conditions to ship oil in American bottoms to Europe in competition with the lower costs of the foreign-built ships.

Mr. O'CONNELL. Possibly I have something else in mind. I am informed that at least one of the major oil companies operates a substantial fleet of tankers through a subsidiary corporation under the Panamanian flag and that those ships are officered and manned by other than Americans, and I was interested to know whether you thought that was entirely in accord with the position I understood you to take, that the industry's attitude toward labor was one that was let me say, unparalleled. Are you familiar with that particular situation?

Mr. PEW. I am not familiar with it; but just to bring out one point, the cost of American shipbuilding and operating ships under the American flag is so much greater than it is under any of the other countries—most other countries—that on business as between American ports and a foreign port the American boats just can't compete.

Mr. O'CONNELL. Well, would an oil company operating its own tankers and carrying its own oil be really in a position of competition with foreign boats?

Mr. PEW. Not in foreign trade; they can't be.

¹ These hearings were held prior to the practice of certain U. S. shippers in transferring registration of their ships to Panamanian.

Mr. O'CONNELL. Then I take it that the incentive to a company to operate under another flag would be, or partially at least, to avoid the requirements of, let me say, the Maritime Labor Act and other laws of this country that would require certain wage standards?

Mr. PEW. I don't think you have to look that far for a reason. An American company either can't do that job at all—they have got to farm it out to foreigners—or they have got to operate their ships under a foreign flag.

Mr. O'CONNELL. That hasn't been the experience of your company?

Mr. PEW. Well, we don't do any business today with other countries in our own boats. We simply charter them. If we want to ship a cargo of oil abroad we charter a boat.

Mr. O'CONNELL. You are not familiar with the fact, as I understand it, that this company, at least this one company, made a practice of having a substantial part of its tank fleet operated under a subsidiary corporation under the Panamanian flag, even though there was no foreign trade involved; but as I understood it, I could think of no good reason other than to avoid these things.

Mr. PEW. Under the law you can't move goods between two American coastal ports in any except an American-flag ship.

Mr. O'CONNELL. Yes; but you could move between South American ports, I take it.

Mr. PEW. Yes; but all that business is handled by foreign bottoms.

Mr. O'CONNELL. By a "foreign bottom" you mean owned by an American company possibly but operated by another flag.

Mr. PEW. It may be an English company, a Panamanian company, or what not, but it just isn't economically possible to do business between two foreign countries or between one foreign country and the United States with a ship that is built in the United States.

Mr. O'CONNELL. I wasn't particularly thinking of built.

Mr. PEW. I feel rather strongly about that, because I happen to be a shipbuilder,¹ and we can build ships with a less expenditure of labor than they can build them in any other country in the world. There are fewer man-hours spent in the building of our ships in America than is the case in Europe, and yet our costs are so excessive that we can't compete.

Mr. O'CONNELL. Incidentally, has your shipbuilding company built any ships recently, tankers for your own company or otherwise?

Mr. PEW. We built a ship a few months ago for ourselves.

Mr. O'CONNELL. In those operations, does your shipbuilding company or the person for whom you are building the ship receive a subsidy from the Maritime Commission, a construction subsidy to equalize the cost?

Mr. PEW. Not in the case of the ship that was built for us.

Mr. O'CONNELL. Have you ever built any under that subsidy arrangement?

Mr. PEW. No. It is, I think, a little misleading to call it a subsidy, because the amount of money which our Government contributes to the building of that ship adds nothing to the value of the ship in the hands of the operator.

¹ See footnote 1, *supra*.-p. 7171.

Mr. O'CONNELL. I understand that.

Mr. PEW. It is only money that is spent for the purposes of the Government in the event of an emergency when the Government takes over the boat. It is a direct liability, I think, rather than otherwise, as far as the operator is concerned.

Mr. O'CONNELL. You are thinking of the Government subsidy or the Government payment which is made to give tankers additional speed and additional facilities to make them available in time of emergency; but I was thinking of the fact—I understood it to be a fact—that there is a regular construction subsidy which is granted to equalize the cost of construction of ships in this country and abroad.

Mr. PEW. That is in export business.

Mr. O'CONNELL. But that is quite apart from the war purpose.

Mr. PEW. Yes.

Mr. O'CONNELL. There is a distinction, I think, between the two of them. They both involve expenditure of Government funds. In one case there is a clear Government purpose to make the tankers available in time of war, and in the other case, I take it, it is part of a buy-American plan, so to speak.

Mr. PEW. We built a number of ships, for instance, for the McCormick Line, operated under just such a subsidy as you mention. I don't think we have ever built any tankers to operate under those conditions.

Acting Chairman REECE. Are there any other questions? The committee appreciates very much your presentation and thanks you kindly for giving us this time.

Mr. PEW. Thank you very much, gentlemen. I want to express my appreciation for your courtesy and your patience.

(The witness, Mr. Pew, was excused.)

Acting Chairman REECE. The next witness scheduled is Mr. Marion M. Travis. Is Mr. Travis present?

Do you solemnly swear that the testimony you shall give in this procedure shall be the truth, the whole truth, and nothing but the truth, so help you God?

Mr. TRAVIS. I do.

TESTIMONY OF MARION M. TRAVIS, SOUTHPORT PETROLEUM CO., HOUSTON, TEX.

Acting Chairman REECE. Before you begin your statement, will you please give us your name and background of your experience?

Mr. TRAVIS. My name is Marion M. Travis. I was formerly connected with the Southport Petroleum Co., of Houston Tex. I was its general manager in charge of all sales and purchases—all purchases of crude and sales of refined products. I have been in the oil business for in excess of 30 years. I am past 50 years of age. I have worked in the oil fields from the time I was 16 or 17; I have worked under the drilling derrick; I have produced oil; I have refined oil; I have worked in the laboratory; and I have worked in executive positions with this and other companies that I was associated with and I believe that I am fully acquainted with practically every phase of the industry.

I want to correct an impression in the statement I was not president of the Southport Petroleum Co. As I stated, I was its general man-

ager. I controlled 50 percent of the stock of that company and its subsidiary companies.

Acting Chairman REECE. Do you have a statement which you would like to make to the committee before we ask you questions? If so, you may proceed, or, if you have a statement which you would like to summarize and have the full statement go into the record as your statement, that can also be arranged.

Mr. TRAVIS. I am at a loss. I do not want to burden the committee with the job of listening to the reading of a statement. On the other hand, I believe by reading it I can make the statement clearer than I can by summarizing.

Acting Chairman REECE. We will be glad to have you do that.

MAJOR COMPANY DOMINATION OF THE INDUSTRY

Mr. TRAVIS. Many theories and explanations have been advanced in an effort to explain the situation that now exists in the oil industry.

This, incidentally, was written early this year.

The business depression, the administration, the new oil fields in Illinois, the more liberal licensing policy adopted by the Ethyl Corporation, and too much crude oil being produced are among the explanations offered as the cause of the present situation. The fact is that none of these things are, or have been, responsible. The search for the real truth will lead you in the final analysis to the consideration of the methods employed and adopted by major oil companies in the marketing of their refined products. It is only after we thoroughly comprehend these methods that we may understand how they relate back to the production and control of crude oil.

Major oil companies sell approximately 85 to 95 percent of their gasoline and kerosene on what is known as the tank-wagon market, and the remainder of their products on what is known as the spot market. The tank-wagon market is a market that is definitely controlled by each major oil company and is usually the identical market of the other major oil companies. This market is set and fixed by major oil companies and over a large area of territory does not fluctuate on an average of more than once or twice a year. It is on this tank-wagon market that the major oil companies sell their house-branded gasoline. That is, the trade-marked gasoline. The spot market that the major oil companies sell their surplus of gasoline and kerosene usually constitutes the 100-percent market of the independent refiner. The spot market is reflected by several trade journals who have no stake or investment in the industry, who are unsupervised as to their methods of representing the market, who maintain no technical staff, and are not acquainted with production costs or relative values of refined products. The contribution that these trade journals make is their idea of the going market for the various refined products which they list. Set up as these trade journals are, it is not a difficult thing for a broker to manipulate the refined market. This manipulation may be the difference between profit and loss to the independent refiner, since the great majority of independent refiners are completely dependent upon these trade journals for their market realization.

Varying seasonal demand, or unfavorable statistical position, become vital factors affecting the market structure. At such times the

market is very susceptible to manipulation and it is a comparatively simple matter to depress it to lower levels. It takes but little imagination to realize that under this market set-up major oil companies can tilt this market downward by the simple expedient of dumping products into commerce on the spot market and thus reduce the spot-market quotation to a level that will destroy any possibility of profits resulting to the independent refiner. Keeping these thoughts firmly in mind, let us examine events and developments from before the conclusion of the Madison trial a year ago. The oil industry was completing the most successful year in its history. In September the industry was approaching the heating-oil and fuel-oil season with normal stock of heating oil and fuel oil on hand to meet the seasonal demand, and with no substantial increase in demand in sight, due to the fact that the 1937 depression had definitely set in and had unmistakably manifested itself in reduced fuel-oil consumption, yet the industry proceeded to increase its runs to stills instead of tapering off, having run at peak to produce the summer requirements. An examination of the A. P. I.¹ figures dealing with crude oil runs to stills for the last 4 months of 1937 and the first three months of 1938, discloses approximately 49,000,000 barrels more crude oil was charged to stills than for the corresponding period of 1936 and 1937; and that during this same period gasoline, gas, and fuel-oil stocks increased approximately 33,000,000 barrels. In other words, 33,000,000 barrels more crude oil was charged to stills than was necessary. In view of the fact that major oil companies all receive weekly statistics showing the crude runs to stills and the withdrawals from crude storage, and the increase in inventory stocks, it cannot possibly be imagined that major oil companies were unacquainted with what was happening. It is much more reasonable to assume that not only did they know at all times what was happening, but that they definitely wanted to happen that which did, otherwise they would have taken positive steps to prohibit this increase of inventory.

From this point let us proceed to review events in relationship to this bad inventory statistical position. Foreign buyers of crude oil and refined products purchased a daily average of 197,390 barrels of crude oil as computed for the first 10 months of 1938, and a daily average of 287,400 barrels of refined products for the same period; or a total of 484,790 barrels of crude and refined products equivalent to approximately 15 percent of the total crude oil produced in the United States for this period. The crude and refined products both are exported on what is known as the spot-export market. Foreign buyers were not slow in converting the bad statistical position of our refined inventory of their advantage. The foreign crude purchaser who often belongs to the same combination who purchases our refined products, advised his current American supplier that he contemplated sharply curtailing or discontinuing his present purchase of crude oil altogether, because he was being offered refined products cheaper than he could produce refined products from crude oil.

The supplier was then confronted with the proposition of losing his sales or making price concessions. He promptly elected to do the latter, and this was the beginning of the crude-oil price concessions to

¹American Petroleum Institute.

the export buyer. These foreign buyers next proceeded to advise their refined-oil suppliers that in view of crude-oil price concessions which they had received from crude-oil suppliers, that they could now produce refined products cheaper than they could buy them, and by withholding their purchases of refined products, they were able to force the refined-oil suppliers to lower their spot-market quotations, for refined products, so as to compete with the lowered crude-oil prices, at which time the crude-oil purchaser immediately went back to his crude-oil supplier demanding additional concessions, which were not difficult to secure, and then back again to his refined-oil supplier.

So, back and forth they wended their way, never to return without further concessions. While all of this was taking place in the export market between the supplier of crude oil and refined products on the Gulf and the buyer thereof in Europe, the following is what took place in the domestic market of the United States. Gulf Coast refiners, seeking to escape this ruinous competition, proceeded to force their refined products on the Atlantic seaboard and on the Pacific coast, and very promptly broke down these markets to the level of the Gulf Coast market after allowing for ocean transportation. Gulf Coast gasoline is said to have found its way from the Gulf to Boise, Idaho, via Seattle, Wash.

At the same time this was going on refiners located in northern Texas, in central Texas, in east Texas, in the Shreveport, La., area, and in the El Dorado, Ark., areas, who had been refining and shipping about 50 percent of their gasoline, kerosene, and heating oil to the Gulf Coast, found themselves deprived of an outlet for half of their products, since they could not afford to ship gasoline, kerosene, and heating oils as they formerly had done for export or coastwise, and in an effort to escape the ruinous export spot market, they proceeded to ship their refined products northwest, north, northeast, east, and into every nook and cranny that would offer a better realization than Gulf Coast export or coastwise markets would, and soon these refiners succeeded in breaking down the domestic markets from the Rocky Mountain States to the Atlantic seaboard, and thus was the refined market structure broken down from one end of the United States to the other, all because concessions had been originally made by crude-oil suppliers to export buyers from their former prices, which included the posted prices and the full cost of gathering, transportation, and loading.

These results are inevitable once concessions on crude-oil prices are made. The crux of the entire proposition is this: So long as the industry is geared to produce or refine 15 percent more than we can consume, this 15-percent surplus, which is exported, will, in the end, set the market for the 85 percent that is sold in the domestic market. During the interim, the majors have enjoyed a profitable tank-wagon realization.

No amount of crude-oil price cuts, no improvement in the refined statistical inventory position, and no reduction in the crude-oil stocks can restore a healthy refined price structure so long as there are any concessions made to export buyers of crude oil. Ten cents a barrel on a crude-oil price concession is equivalent to one-half a

cent a gallon of refined-oil-price recession, not only on the Gulf coast, but throughout the whole United States.

Summarizing these events for the purpose of analysis, making a careful study of causes and their effects from the vantage point gained of 30 years of experience in the oil business, I am forced to make the following conclusions that major oil companies have evolved a formula that definitely limits the growth and the very existence not only of the independent refiner but of the independent producer as well.

The components of this formula considered by themselves appear to be so innocent and innocuous that it is difficult to recognize them as parts of a definite and sinister formula. Some of these components have even escaped the shrewdest minds of the Government who have sought to delve into the mystery of major oil company set-ups.

I do not flatter myself that I have discovered every element or ingredient of this formula, but I do believe that I can reveal the most important ones, their relationship to one another, and how they work. I have listed below some of the more important ingredients or elements that comprise this formula. I have arranged them not in the order of their importance, but rather in a manner as will make it easier to understand them.

Mr. TRAVIS. Ingredient No. 1 is diffused distribution. By virtue of diffused distribution, the independent refiner is rendered almost helpless in his efforts to escape the spot-market realization for his refined products. The tremendous investment that would be necessary to build sufficient filling-station outlets and advertise his products in order to trade-mark and house-brand them would be many times greater than his total investment, large though it is, in his refining operation. Diffused distribution makes it possible for major oil companies to defy the entire trend of modern merchandising, the modern trend being toward the elimination of the inefficient, wasteful, and expensive middleman. This trend has restored at least 25 cents to every dollar in the way of additional purchasing power in connection with most of the commodities and products that we normally buy. The Atlantic & Pacific Tea Co., Sears, Roebuck & Co., Montgomery Ward & Co., J. C. Penney, R. H. Macy, Woolworth, Kress, and the various nationally known food-distributing companies, among others, are distributing their products and merchandise on a cost-plus-25-percent (or less) basis, exclusive of the cost of transportation. Major oil companies distribute their regular trade gasoline, which constitutes about 80 percent of all the gasoline they sell, on a basis of approximately 140 percent above the cost of such gasoline, if purchased on the refined spot market, exclusive of taxes and transportation costs.

In other words, the consuming public pays to the major oil company \$2.40 for \$1 worth of gasoline, plus the tax and transportation on same. Motor oil and greases are distributed at even a greater cost basis to the public. From my computations it is apparent that the consuming public spends approximately 8 percent of the national income at the filling station. At least one-fourth of this amount, which would be equivalent to one billion and a quarter dollars per annum might be saved and restored to the consumers if gasoline, motor oil, and greases

were distributed on a basis comparable to that on which merchandise is distributed in other lines of industry. If this economy were effected, the consumption of gasoline, motor oils, and greases would unquestionably increase at least 15 percent, and a 15-percent increase in consumptive demand of refined products would mean a 15-percent increase in the production of automobiles, trucks, and so forth. For comparative purposes, this one billion and a quarter tribute that is paid to major oil companies because of their diffused distribution, is sufficient to cover our annual national relief bill.

Mr. TRAVIS. Ingredient No. 2. In this formula is the major oil company tank-wagon quotation. This quotation permits them to sell their trade-marked brand of gasoline on their own market structure. This market cannot be affected because someone deliberately, or otherwise, dumps a few cars of gasoline to someone at a lesser price. No one can rig the tank-wagon market and no broker can manipulate it to his advantage. This market fluctuates only when the major oil companies get good and ready for it to fluctuate—usually when their business starts falling off after the spot market has been in a protracted decline and independents have been able to make some inroads on the major oil company jobber accounts.

Mr. TRAVIS. Ingredient No. 3. This is the spot market, and is some ingredient, as you will see. It is a completely unsupervised, sensitive, chaotic, and especially susceptible to rumor and bearish influences, an altogether harum-scarum, daffy-dilly sort of an affair. (You will pardon me for being a little facetious; I was feeling a little differently at the time I wrote this.) If there is anyone connected with the staff of the principal trade journals who knows anything whatever about the technical phases of refined products, the manner or cost of production, I have yet to meet him. Their sources of information are principally the major oil companies or brokers. Yet this market is the one that the independent refiner is forced to sell almost all of his products and yet hardly ever is he consulted by the trade journals as to what he might know about the spot market. The independent refiner is as helpless as the patient who is being operated upon and the comparison does not end there. It is everybody's party, but he pays the bill.

Major oil companies make it their business to sell certain small quantities of their refined products on this spot market. They constantly trade in this market, not because they need it as an outlet, but because by trading in this market they cannot only influence it but dominate it. I have observed time and again that major oil companies have sold refined products on the spot domestic market, or on the spot export market at a lower price than the prevailing market quotation, and then turn around and cover their sales by purchasing from independents desperate for outlet at a still lower price. Very often the lower prices resulting from these transactions would be immediately reflected in the trade journals' spot-market quotations. It is a notorious fact that major oil companies buy almost as much refined

products from independents as they sell on the domestic and export spot markets. It is important to know and realize that most of the refined products majors buy in the export spot market are sold by them through their own controlled outlets in Europe and elsewhere on their own European tank-wagon markets.

The spot market thus becomes a sort of thermostat by which the number of independent refiners and their state of health is definitely regulated. Major oil companies do not want to destroy all of the independent refiners. That would give entirely too much color and currency to the charges of monopoly and would, in the end, destroy them. Not daring to destroy the independent refiner completely, they aim to keep him barely alive on starvation rations and use him as a means of regulating the independent producer.

To illustrate, when the spot market has been manipulated to reflect a very bad refined market condition for a considerable period of time, then crude-oil prices may be lowered. Shut-downs and shut-ins, reduced takings, or no pipe-line connections at all, become the order of the day, and the independent refiner is blamed for it all because the independent refiners' lowered spot market was responsible for the crude price cut and for the reduced takings, the shut-downs and shut-ins, and so forth. It is a remarkable coincidence that after every protracted period of shut-downs and shut-ins, reduced takings, and no pipe-line connections, and reduced crude-oil prices, that major oil companies acquire a great many new properties from independent producers.

Mr. TRAVIS. Ingredient No. 4. This is pipe-line transportation, both crude and refined, and the passing on of all or part of the transportation economies effected to the purchaser of the commodity transported in order to destroy competition. This subject has received so much attention that I will not add to it here, other than that in the writer's opinion pipe-line divorcement is not the cure for this evil—but that confiscatory taxes above a very reasonable return based on the valuation is—that and Interstate Commerce regulation, regulating pipe lines that will make them common carrier in more than name only.

Mr. TRAVIS. Ingredient No. 5. This is the export spot market for crude oil. This is a ramification and a buttressing of the export refined spot market. We have witnessed and seen that concessions from the crude-oil prices that represent the posted and the full gathering, transporting, and loading tariff, are quickly followed by equivalent recessions in the spot market refined price structure. The export spot market crude price structure becomes the thermostat equivalent which regulates the size and the existence of the independent pipe-line companies who had the temerity to enter into this almost exclusive major oil company field. We have recently had perfect examples of the workings of this ingredient of the formula in the sale of crude oil loaded aboardship on the Gulf at prices that represented actually less than the posted price paid for crude oil in the field in which it was gathered. In other words, the total gathering, transporting, and loading tariff was passed on to the purchaser.

Crude oil is at present being sold by numerous companies considerably below the posted and the full transportation and loading tariff. The usual major oil companies' excuse for selling below the full price is that it was necessary to meet independent competition.

Mr. TRAVIS. Ingredient No. 6, tetraethyl lead, has recently lost some of its importance by the reason of the adoption of a more liberal licensing policy on the part of the Ethyl Corporation. This ingredient of the formula up to recently was a powerful economic club that enabled major oil companies to produce antiknock gasoline at a greatly reduced cost compared to the independent refiner who had to achieve antiknock quality by expensive cracking-unit installations. It is to be noted that this more liberal licensing policy coincides with the United States Government's suit against the Ethyl Corporation.

Mr. TRAVIS. Ingredient No. 7 is the American Petroleum Institute, under the auspices of which statistical information concerning every phase of the industry is or may be compiled. This institute is dominated and controlled by major oil companies. Its meetings afford the fullest opportunity for collaboration by major oil-company representatives for constructive policies to them or destructive policies to the independent, as the case may be. Such meetings without the blessing of the A. P. I. would be very awkward. Adroit presentation of statistical information may definitely further the purposes of monopoly. Presentation of some of the statistical information in the manner it has been presented had a definitely bearish effect on the entire market structure of refined products and on crude oil. It is well to note that this institute makes no effort to compile the very important information dealing with the production and exports of crude and refined products produced by these major oil companies in Venezuela, Colombia, Peru, Ecuador, Bolivia, and other important South American oil fields. The crude and refined products from these fields constitute the most important competition to our American products. There is definite reason to believe that were this information available it would greatly influence our American policies, especially that of proration.

Mr. TRAVIS. Ingredient No. 8 is political pull, power, and influence. This subject is so vast, so far-reaching, so ramified, and so private as to make it very difficult to evolve a pattern sufficiently representative to do it justice, but from what I have glimpsed and from what I have sensed it is truly an awesome thing. I have not had occasion to become acquainted with this influence in the Nation's Capital. Suffice it to say, however, that there is not a State in this Union which has not felt this subversive influence in some way or another. It may be in connection with specifications under which refined products may be sold, which specifications contrive to make it almost impossible for an independent refiner to successfully compete for important business from the State, counties, or municipalities. It may be tax bonds, usually out of all proportion in size to those furnished by the major oil companies in comparison to their respective volumes of business, which make it extremely difficult for independent refiners and distributors to comply with them in many States. Tax bonds are very difficult to procure.

I wish to state that there is a portion of this ingredient that at this time I would wish to withdraw. I think it befits the issue and

serves no purpose, and it is not my intention here to create any heat, rather to shed light, and I will skip and start there where it starts.

Nothing better illustrates the faith that the major oil companies feel in their political powers than the security with which they are still investing hundreds of millions of dollars in the building of new filling-station outlets. They say that concentrating distribution would throw thousands of people out of employment. They know full well that the substantial lowering of retail prices would result in an increased demand for gasoline and motor oil which would be followed by an increased demand for automobiles and trucks, and that the manpower necessary to produce the additional refined and automotive products would fully offset the manpower that might find itself temporarily out of employment. It is also to be remembered that in spite of the approximate 140-percent cost of distribution, filling-station attendants as a class are among the lowest-paid workers in the United States. The transition from diffused to concentrated distribution could not be accomplished in less than 1 or 2 years, during the process of which the increased demand for refined and automotive products would have manifested itself, and the labor problem would then be that of balancing the unemployed from a poorly paid field against increased employment in the highest paid field. The temporary charges for transition could be borne by government, if need be. This problem of reemployment should not deter the junking of the diffused distribution any more than the throwing away of crutches on which one has hobbled along until he has gotten well and no longer needs.

Acting Chairman REECE. Do you have some questions, Mr. Cox?

Mr. Cox. Mr. Snyder is going to examine the witness.

LOSSES SUSTAINED BY INDEPENDENT COMPANY IN COMPETITION WITH MAJORS

Mr. SNYDER. Mr. Travis, for how many years were you connected with the Southport Petroleum Co.?

Mr. TRAVIS. From its inception.

Mr. SNYDER. About what date was that?

Mr. TRAVIS. I think in 1930 or '31.

Mr. SNYDER. Did you have a considerable investment in that company?

Mr. TRAVIS. I did.

Mr. SNYDER. Roughly, what was the company valued at?

Mr. TRAVIS. I think something like \$4,000,000 net.

Mr. SNYDER. Was it a complete refining unit?

Mr. TRAVIS. It was a complete refining unit, operating two refineries.

Mr. SNYDER. Where were those refineries located?

Mr. TRAVIS. One at Kilgore, Tex., and one at Texas City, Tex.

Mr. SNYDER. Did the company have any crude-oil reserves?

Mr. TRAVIS. Very little. They had some, but very little.

Mr. SNYDER. Were they located in the State of Texas?

Mr. TRAVIS. They were.

Mr. SNYDER. Did you own crude-oil-gathering systems?

Mr. TRAVIS. We did.

Mr. SNYDER. Did you have trunk crude pipelines?

Mr. TRAVIS. We did not.

Mr. SNYDER. Were the gathering systems directly connected with your refineries?

Mr. TRAVIS. They were.

Mr. SNYDER. How recently did you dispose of your interest in the Southport Petroleum Co.?

Mr. TRAVIS. As of July 1.

Mr. SNYDER. Did you dispose of it because you thought it was a bad investment and you wanted to get out of it?

Mr. TRAVIS. I have disposed of it because we had consistently been losing money over a period of time, in spite of the fact that we were doing what I call a first-rate job of refining and selling and distributing.

Mr. SNYDER. Did you have a modern plant?

Mr. TRAVIS. Ultra-modern.

Mr. SNYDER. You had the most up-to-date cracking processes for the refining of crude oil?

Mr. TRAVIS. We thought that they were.

Mr. SNYDER. Which branch of the industry contributed mostly to your losses?

Mr. TRAVIS. Will you explain that question?

Mr. SNYDER. Did you have your losses in the production branch of the industry?

Mr. TRAVIS. Our losses occurred in the distributing end of the business.

Mr. SNYDER. In other words, the marketing branch is where you lost your money.

Mr. TRAVIS. The marketing branch. May I explain that?

Mr. SNYDER. Surely, we would be glad to have you.

Mr. TRAVIS. We attempted to escape the spot-market realization. There is only one way that that is possible and that is to house-brand your products, to advertise them and to create a demand for them. That permits you to do what major oil companies do, that is, sell your product on the tank wagon price which is considerably above that which you receive for the spot market. We surveyed various areas and we finally settled on the idea that we could achieve an economy through barge transportation or ocean transportation to New Orleans, and we found that there was an area in Southeastern United States, the States of Florida, Georgia, Alabama, Mississippi, South Carolina, Tennessee, Louisiana, and Eastern Texas in which we could achieve economies, especially from New Orleans east.

We formed the Southport Transit Co., which acquired barges. We leased tugs, and we transported gasoline and refined products to one terminal at New Orleans, and later on to a terminal that we constructed at Port Birmingham. We acquired a fleet of new trucks to transport over considerable distances in an effort to achieve an economy over freight. Prior to acquiring these facilities which would permit us to enter in on a competitive basis with other companies in the southeastern part of the United States, we went to the railroads and asked for a reduction of freight rates from New Orleans—that is,

from Avondale, where our terminal is located, across the river from New Orleans—to various consuming centers in southeastern United States, but found that we could get nowhere in securing freight-rate reductions that would make it possible for use to compete on a competitive basis.

Mr. SNYDER. Did you appeal to the Interstate Commerce Commission for those reductions?

Mr. TRAVIS. That isn't hardly the way you go about these things. We interviewed executive heads of railroads, and we know from experience that if they are unwilling to cooperate with you toward securing lowered rates that the protracted procedure of appealing to the Interstate Commerce Commission is just a waste of time and would be profitless or futile.

Strange to say, after we had completed our transportation facilities, our terminals had acquired filling-station outlets, had engaged in advertising campaigns, and had started to create a demand for our products on a house-brand basis, the railroads did see fit to reduce freight rates from New Orleans; from Baton Rouge; from Mobile, Ala.—all of which are refining centers; and the way it worked out all of our economies that we achieved were vitiated or negated, and we found ourselves back again to where we started.

Mr. SNYDER. For what reason? What destroyed those economies?

Mr. TRAVIS. Well, there are certain economies that major oil companies have. They have terminals located on the Atlantic seaboard; in Florida; Savannah, Ga.; Charleston, S. C.; and all along where they could, with the lowered freight rates that were put into effect not only from New Orleans but from the Atlantic seaboard west into this territory compete again to advantage.

Mr. SNYDER. Are you conveying the idea that when you asked for lower freight rates the railroads refused them; and then, after you went into business, the railroads granted lower freight rates at the request of your competitors?

Mr. TRAVIS. Yes, sir.

Mr. SNYDER. Now, in your refining operations, what quality gasoline did you manufacture?

Mr. TRAVIS. We manufacture all qualities of gasoline that are being sold practically by every major oil company. We produced gasoline according to the specifications of most of the major oil companies on the Atlantic and Gulf coasts.

Mr. SNYDER. Was 100 percent of your gasoline production distributed through these facilities which you gradually acquired?

Mr. TRAVIS. No; only a small part. This, as I explained before, was an attempt to escape spot market realization and to get on the tank-wagon market.

Mr. SNYDER. Before you embarked on this venture of your own distribution, to whom did you sell your gasoline?

Mr. TRAVIS. We sold on spot market to all and sundry.

Mr. SNYDER. To jobbers?

Mr. TRAVIS. To jobbers, to major oil companies, to independent distributors. We did succeed in marketing—the Southport Petroleum Co. is doing an excellent job of marketing house-branded products in the Houston area.

Mr. SNYDER. After you began your marketing operations of your own, did you continue to sell to the major oil companies?

Mr. TRAVIS. Yes, sir. I might add that the reason for this successful operation in house-branding in the Houston area is due primarily to the fact that we can move gasoline as cheaply as anybody can from the Houston area to the points of distribution, and there are no transportation advantages available to anybody more than what we can enjoy ourselves.

Mr. SNYDER. That was using water transportation?

Mr. TRAVIS. No. It is very inexpensive to transport. We transport it from Texas City to the Greater Houston area as cheaply as the major oil companies, and for that reason we were definitely in position to compete with major oil companies in house-branding in that area.

Mr. SNYDER. Was a gasoline pipe line involved in your distribution?

Mr. TRAVIS. No, sir.

Mr. SNYDER. Did you ever have need to use the gasoline pipe lines as carrier?

Mr. TRAVIS. I did not.

Mr. SNYDER. When you began marketing in the southeastern area of the United States, did your sales to the major oil companies increase?

Mr. TRAVIS. No; it did not particularly affect them.

Mr. SNYDER. Did you sell your gasoline to several of the companies, or many of them?

Mr. TRAVIS. I have sold to many of the companies. We made the gasoline according to the specifications that they desired to buy. The Southport Petroleum Co. is still selling to major oil companies.

Mr. SNYDER. You mean that certain of the major companies handed you specifications and you made the gasoline according to those specifications?

Mr. TRAVIS. It isn't quite that way. The major companies who do not produce all the gasoline that they need buy it through brokers whom they designate—gasoline such as they require according to their specifications. We receive the inquiries, and if we can meet the price we secure the business.

Mr. SNYDER. Then you mean in your normal operations you were producing gasoline of those specifications.

Mr. TRAVIS. Yes, sir.

Mr. SNYDER. Do you care to name the names of the companies to whom you sold gasoline?

Mr. TRAVIS. Yes; we sold to Standard Oil Co. of New York, Standard of New Jersey, the Asiatic Petroleum Co., at times to the Shell, we sold to the Gulf, and we have sold to the Sun Oil Co.

Mr. SNYDER. Well, now, do you know or not whether this gasoline that was sold them was resold by them under their brand names?

Mr. TRAVIS. I would have no way of knowing, but I would assume it was.

Mr. SNYDER. Do you know whether the Sun Oil Co. reprocessed it or not before it sold it under its trade name?

Mr. TRAVIS. I wouldn't imagine they reprocessed the gasoline they bought from us, because it was very high octane and they were very

particular about the specifications. If you are going to reprocess gasoline, you are not very particular about the specifications in the first instance.

Mr. SNYDER. Do you have a tetraethyl-lead license?

Mr. TRAVIS. We secured one finally about a year ago.

Mr. SNYDER. Then practically all this gasoline you were selling to the major companies was unleaded.

Mr. TRAVIS. At times the gasoline, for instance, that we sold to Sun was unleaded. We sold some of the gasolines leaded; most of it we sold was unleaded until this last year.

Mr. SNYDER. Were you able to attain a high octane without tetraethyl lead?

Mr. TRAVIS. We were.

Mr. SNYDER. Was there any particular process that you used that you would care to name?

Mr. TRAVIS. We used the Donnelly process, and we were licensed under the Donnelly Process Corporation and the Gasoline Products Corporation.

Acting Chairman REECE. What do you think about going on tonight? If it is going to take considerable amount of time, my disposition would be to recess until tomorrow. The committee will stand in recess until 10:30 tomorrow morning.

(Whereupon, at 4:53 p. m., the committee recessed until 10:30 a. m. Thursday, September 28, 1939.)

INVESTIGATION OF CONCENTRATION OF ECONOMIC POWER

THURSDAY, SEPTEMBER 28, 1939

UNITED STATES SENATE,
TEMPORARY NATIONAL ECONOMIC COMMITTEE,
Washington, D. C.

The committee met at 10:40 a. m., pursuant to adjournment on Wednesday, September 27, 1939, in the Caucus Room, Senate Office Building, Representative B. Carroll Reece presiding.

Present: Representative Reece, Messrs. O'Connell, Henderson, and Brackett.

Present also: Hon. Edward Noble, Acting Secretary of Commerce; Clarence Avildsen and Robert McConnell, representing the Department of Commerce; Willis Ballinger, representing the Federal Trade Commission; Quinn Shaughnessy, representing the Securities and Exchange Commission; Hugh Cox, W. B. Watson Snyder, Christopher Del Sesto, and F. E. Berquist, special assistants to the Attorney General; Roy C. Cook and Leo Finn, Department of Justice.

Acting Chairman REECE. The committee will come to order, please. Are you ready to proceed, Mr. Snyder?

TESTIMONY OF MARION M. TRAVIS, HOUSTON, TEX.—Resumed

Mr. SNYDER. Mr. Travis, just before adjournment yesterday, we were discussing certain freight-rate changes in the Southeastern area. I believe you testified that at the time you entered the area you had requested the railroads to reduce the rates and the railroads refused. Then I asked you the question if you appealed to the Interstate Commerce Commission and I believe you said that you did not. Then I asked you the question whether the rates were reduced at a later date after you had entered and begun business there. Do you know whether the railroads reduced those rates on their own motion or whether the oil companies went to the Interstate Commerce Commission and requested a reduction?

Mr. TRAVIS. I do not know.

POSTED PRICES AND COMPETITIVE PRICE REDUCTION

Mr. SNYDER. When you began marketing in States along the Gulf coast and the Southeastern States, were you faced with any unusual competitive conditions?

Mr. TRAVIS. We ran into unusual competitive conditions in practically every State that we entered into.

Mr. SNYDER. Is there any particular situation that you believe is outstanding?

Mr. TRAVIS. Well, they were a repetition of the same thing. When we entered New Orleans, shortly after we entered, there were price reductions in the spot market of a cent a gallon. We certainly had not made any inroads on competitive accounts to justify, in our opinion, such a price cut as took place.

Mr. SNYDER. In order to obtain a gallonage in New Orleans did you cut the price?

Mr. TRAVIS. I do not think so. I think our policy has been to sell quality rather than price.

Mr. SNYDER. Were you selling third-grade or branded gasoline in New Orleans at that time?

Mr. TRAVIS. We were selling all grades of gasoline and endeavoring to brand our quality gasoline.

Mr. SNYDER. You conducted newspaper advertising?

Mr. TRAVIS. We did, radio and newspaper advertising.

Mr. SNYDER. What was your brand name?

Mr. TRAVIS. Hiotane.

Mr. SNYDER. Suggested by high octane?

Mr. TRAVIS. It is a patented word, a combination of the two.

Mr. SNYDER. How long had these so-called price wars continued after you went in there?

Mr. TRAVIS. They are periodic. The periodic-price wars in the New Orleans area have been over the last several years—there have been more price-war periods than there have been periods when there were no price wars.

Mr. SNYDER. During these price wars on gasoline, about how many cents per gallon below the prevailing price existed?

Mr. TRAVIS. Do you mean in the spot market or in the filling station?

Mr. SNYDER. At the filling station.

Mr. TRAVIS. Several cents.

Mr. SNYDER. Several cents per gallon?

Mr. TRAVIS. Per gallon.

Mr. SNYDER. Did the tank-wagon price fluctuate the same way?

Mr. TRAVIS. I have no way of knowing what the major oil company tank-wagon prices are; that is between them and their jobbers, or dealers.

Mr. SNYDER. Are not those tank-wagon prices published in the trade journals of New Orleans?

Mr. TRAVIS. Well, I don't think so; I don't think they are published in any local trade journals.

Mr. SNYDER. Are they published in the National Petroleum News?

Mr. TRAVIS. I think that they are published in the National Petroleum News, but the tank-wagon price structure is a thing that is between the major companies and their own particular jobbers, and we don't really know what they really are.

Mr. SNYDER. In other words, you don't believe that gasoline is being sold at the tank-wagon prices by the majors; you believe they are lower prices?

Mr. TRAVIS. That depends entirely, I imagine, on the particular major policy.

Mr. SNYDER. Now, in regard to the export market, do you find the competition from all the major companies about on the same level, just as keen from one as another?

Mr. TRAVIS. Just what do you mean by that?

Mr. SNYDER. Do you find that major company X reduces price just about the time major company Y reduces it?

Mr. TRAVIS. Yes.

Mr. SNYDER. Take products, let's take gas oil.

Mr. TRAVIS. As I said before, major companies buy more in the spot market than they sell, and what they sell we do not know; we only know of what they buy and what their policy is toward the markets in connection with their buying.

Mr. SNYDER. Sales from what class of refiners constitute the spot market?

Mr. TRAVIS. Sales from independent refiners constitute the spot market.

Mr. SNYDER. You were an independent refiner, were you not?

Mr. TRAVIS. I was associated with an independent refiner at the time.

Mr. SNYDER. Did the trade journals check with your company to get your sales prices?

Mr. TRAVIS. Only to this extent, perhaps once in 7 months I would be called up; one particular individual of Platt's Oil Gram, and asked what the situation looked like. They would ask particularly as to what we were selling.

Mr. SNYDER. For instance, did they ask you if you had sold a cargo of gas oil and at what price you sold it?

Mr. TRAVIS. No.

Mr. SNYDER. If they had asked you, would you have reported it to them?

Mr. TRAVIS. I would. In fact, I reported many sales to them and in connection with that it is well to bring out that the spot export market is reported by one trade journal only, the Petroleum News, and Platt's Oil Gram, which is the same company more or less. They have an exclusive trade journal; they have no representative in the Gulf coast market. Their markets are made in New York; the opinion that they reflect is the buyer's opinion and not the seller's opinion.

Mr. SNYDER. Would you say, when you say "buyer's opinion," would you consider that to be the major oil companies' opinion?

Mr. TRAVIS. No; it is the opinion of the buyer, whether he is a foreign company or a foreign purchaser. It is his idea, or he reports the prices for which he bought or paid for certain commodities.

Mr. SNYDER. Now, most of the major companies do post prices at which they sell their various commodities to different classes of customers. On the whole, do you find that those companies adhere to those prices in actually making sales?

Mr. TRAVIS. In reference to that—

Mr. SNYDER (interposing). Any refined products; take crude oil and refined products.

Mr. TRAVIS. It is difficult for me to say what they do or what they don't do. It is an opinion, and we can only express an opinion as

we see things happen in results and conclude from these things that have happened.

Mr. SNYDER. Do you have the opinion that in buying and selling, some major oil companies are more ethical than others?

Mr. TRAVIS. Unquestionably.

Mr. HENDERSON. May I ask the cross-examiner what he means by "ethical"? Is that a proper question, Mr. Chairman?

Acting Chairman REECE. I think so, if he is able to answer it.

Mr. HENDERSON. He has a question and an answer and I still don't know what he means.

Mr. SNYDER. I am relating to the former question as to whether the companies were selling at the prices which they posted. Do you think it unethical for a major company to post a sales price and then not to sell at that price?

Mr. TRAVIS. I would think so; yes.

Mr. SNYDER. Is there any particular company that you have in mind that always follows the practice of posting a price and not selling at that price? Or put it the other way: Is there any company you have in mind that always sells at their posted price?

Mr. TRAVIS. I can perhaps best answer that question in connection with purchases of crude oil that we have made.

Mr. SNYDER. Your purchases of crude oil from major companies?

Mr. TRAVIS. Yes.

Mr. SNYDER. For instance, with what company did you deal generally in making your purchases?

Mr. TRAVIS. We have bought crude from the Texas Co., we have bought crude from the Humble, we have bought crude from the Sun and one or two other companies that don't come to mind.

Mr. SNYDER. You bought crude from them on the posted price for crude, that was the basis of the purchase?

Mr. TRAVIS. At posted price for crude.

Mr. SNYDER. Were you able to get concessions from these companies at the time you made the purchases?

Mr. TRAVIS. On some companies, yes.

Mr. SNYDER. In giving you those concessions, do you think the companies were unethical?

Mr. TRAVIS. I think if posted price for crude oil is followed, that any recession from that price to anybody is unethical, and it is pleasant for me to say that in my dealings with the Humble Oil Co. that that company has never offered any crude at less than the posted, the gathering, the transporting, and the loading tariff, plus usually 1 cent or 2 cents a barrel for brokerage. All of those were included in the price.

Mr. SNYDER. In contrast with the Humble Co. are there any companies that you have in mind that are unethical, using that as the measure of ethics?

Mr. TRAVIS. I would rather not state at this moment.

Mr. SNYDER. I won't press the question if you would rather not answer it.

Mr. TRAVIS. I would rather not answer it.

Mr. HENDERSON. Mr. Chairman, if counsel doesn't want to press it, maybe we ought to know whether from the witness's response we are to take it that he prefers not to name companies that have been guilty of what he calls unethical practices, but would rather leave

the impression that there are some that are guilty. Can we have some understanding that way? I don't like to see a question of such importance passed over. Do I gather, Mr. Travis, from your response that there are companies that do not adhere?

Mr. TRAVIS. Most certainly there are.

Mr. HENDERSON. May I ask, while I am on the subject, if it is unethical for the seller to sell at a different than posted price, is it unethical for the buyer to take it? You were very clear as to the lack of ethics in the case of the seller. Do you have any ideas on that?

Mr. TRAVIS. Mr. Henderson, business is competitive.

Mr. HENDERSON. That is what a seller would say.

Mr. TRAVIS. If you have to have crude, you usually buy, especially if you buy the crude, you buy it at the best price obtainable; but the practice of making concessions from the posted and the full tariff for transporting, gathering, and loading leads to a break-down of the entire structure, as I pointed out yesterday.

Mr. HENDERSON. The entire structure of what? You mean the price structure?

Mr. TRAVIS. The price structure for refined and crude.

Mr. HENDERSON. When you say "a break-down," do you mean a lowering of the price?

Mr. TRAVIS. I do.

Mr. HENDERSON. Well, of course, in some sense of the word, the way a real structure of prices is made by rigging the market, and the competition as between the buyer and seller with different conditions of supply and demand.

Mr. TRAVIS. I expressed this opinion. The whole theory of proration is based on the idea of balancing supply against demand.

Mr. HENDERSON. Whose theory of proration?

Mr. TRAVIS. The Commission of Texas maintain that crude oil produced in excess of market demand constitutes waste. I think that that is the accepted theory of proration. I think it is for that reason that crude-oil purchasers infer that they have the right to post fixed prices for crude oil, because there is so much demand and so much supply.

Now, if they undertake to fix posted prices for crude oil, I think it is incumbent upon those crude-oil-purchasing companies to maintain the price structure in relationship to their posting; in other words, that if they are to sell crude oil, that it would be unethical for them to make concessions in their transportation and sell the crude oil at which every independent refiner has to meet the posting, and to sell that crude oil into the market at a lesser price than represents the posted, the transportation, loading, and gathering tariff.

Mr. HENDERSON. Let's get back to the buyer. What is his theory about proration and posted prices? Could I get an answer to the question I posed whether it is unethical for a buyer to buy below the posted price? You started explaining it in terms of competition, but I want to get back to this ethical concept. What do you think of a buyer who buys for less than the posted price?

Mr. TRAVIS. I think that he is helpless. He either has to buy it at the best price obtainable, because in relationship to his price it is going to relate back to what he receives for his finished products, and

if he doesn't buy it as cheaply as he can, he will lose just that much more.

Mr. HENDERSON. So it shifts over from an ethical concept to a profit-and-loss concept, then, as far as the buyer is concerned?

Mr. TRAVIS. I think, Mr. Henderson, that there is this difference, that the buyer who buys from crude-oil-purchasing companies has not undertaken the moral obligation to maintain a price structure.

Mr. HENDERSON. In other words, he hasn't posted a buying price.

Mr. TRAVIS. He has not posted a buying price. The crude-oil-purchasing company that posts a buying price has undertaken, to my mind, the moral obligations of maintaining that position.

Mr. HENDERSON. Let me ask you this in that connection. Which did you find the most profitable period of your operations, when crude was low or when it was high?

Mr. TRAVIS. It is more profitable when crude is high.

Mr. HENDERSON. That is your considered experience?

Mr. TRAVIS. That is my own experience. When crude is low there is no bottom to the market, and the market is chaotic. We find that foreign buying is at its low ebb during a period of price recession.

Mr. HENDERSON. I am not talking about breaking the market or receding the market. I am talking about the level of price now. Over the period of your operations, have you made more money when crude has been low or when it has been high?

Mr. TRAVIS. We made more money when crude was high.

Mr. Cox. When the posted price was high?

Mr. TRAVIS. When the posted price was higher and when the refined price was maintained in relationship to the posted price.

Acting Chairman REECE. When some companies were selling below the posted price and you were able to buy below the posted price and did buy in that way, why did you part of the time buy from the companies who maintained the posted price?

Mr. TRAVIS. We bought crude that was specifically suited to our purpose, to our contracts, and to our marketing policy, and that in the final analysis dictated as to whom we bought the crude from. In other words, the wrong kind of crude we couldn't use even at price concessions. By the "wrong kind" I mean the kind that doesn't fit in with our refining operation.

Mr. SNYDER. Of course, you buy crude at the posted price and you sell your products on the market price.

Mr. TRAVIS. On the spot market.

Mr. SNYDER. The spot-market prices. Your margin of profit, then, gross profit, is measured by the difference between the two prices.

Mr. TRAVIS. Right.

Mr. SNYDER. Your theory is that the higher crude-oil prices strengthen the spot-market price?

Mr. TRAVIS. They do.

Mr. SNYDER. Now, while you are in the refining business down there most of the time, do you find that that relationship actually exists between those two prices? Do you enjoy that profitable relationship?

Mr. TRAVIS. We do. When crude oil becomes scarce and temporarily when there are no crude-price concessions being made to export buyers, the refined-market structure strengthens very quickly and stays firm until crude-price concessions are made again.

Mr. SNYDER. Does that situation apply to practically all refined products which you sold?

Mr. TRAVIS. Practically to all of them.

Mr. SNYDER. Do you have any difficulty in making a profit on gas oil, Diesel oil, furnace oil?

Mr. TRAVIS. Well, the gas-oil, Diesel-oil, furnace-oil phase of the independent refining operation is what might be termed as the bottle neck to their operation.

Mr. SNYDER. What percentage of your refining operation is represented by gas-oil production?

Mr. TRAVIS. On some crudes 40 percent, on some crudes 50 percent.

Mr. SNYDER. So gas oil was an important product so far as your distribution was concerned?

Mr. TRAVIS. It was a very important product.

Mr. SNYDER. Do you find that trade journals correctly reflect gas-oil and Diesel-oil prices?

Mr. TRAVIS. The objection that we find to the trade journals' reflection is simply this: There are not very many sales made during a week on the Gulf coast excepting in cargo lots, and it is different than it is in the interior where there are hundreds of carloads of products sold daily, and the practice of interpreting the market on cargo lots where there are only three- or four- or five-cargo spot-market sales made a week, on an average, is a bad one, for this reason: They should, in my opinion, reflect the actual sale for the actual commodity. If Platt's say they interpret the market to be that gasoline is 5 to $5\frac{1}{4}$, the thing that happens is this: That is an interpretation; if a cargo of gasoline is sold at $4\frac{7}{8}$ it immediately goes down, if it is sold at $5\frac{1}{4}$ the low does not rise.

Mr. SNYDER. The low fluctuates?

Mr. TRAVIS. The low fluctuates.

Mr. SNYDER. The high remains permanent for a period?

Mr. TRAVIS. The low fluctuates downward but remains practically stationary upward because you have got to make a sale at a price above the high quotation before they will reflect it. We have had that up with Platt's time and again. They insist that the realization must be greater than their high because they say, "Well, we do quote it 5 to $5\frac{1}{4}$ and if you have gotten $5\frac{1}{4}$ that is the market quotation." A quarter of a cent a gallon on a cargo of gasoline or a cargo of anything amounts to \$8,000 or \$10,000—10 cents a barrel.

DIESEL AND HEATING OILS PURCHASES AND SALES

Mr. SNYDER. Do you find that any of the major companies purchasing products from you take advantage of the difference between high and low prices on various similar products? Now, for instance, Diesel oil and heating oils?

Mr. TRAVIS. I would prefer to answer the first part of that question first and the last part of it second. There is a distinct difference in the policies of certain major oil companies. I have sold millions of dollars worth of products to the Standard Oil Co. of New Jersey and I have never been requested to sell them products at lower than the going price. More often than not I have received their idea of price that was somewhat higher than the going price. In contra-

distinction to that, the Asiatic Petroleum Co. policy is diametrically opposite.

Mr. SNYDER. I wish you would give some explanation of their action. If you have any example in mind.

Mr. TRAVIS. Yes. The Asiatic Petroleum Co. is the largest buyer of Diesel oil and other refined products probably in the United States, for the export market. This company, as I understand, does not produce or does not refine; they are domiciled in this country and buy for their foreign associations. They are the largest buyers of Diesel oil. Now, we have contracted sales—or I have contracted for the company as an associate in the past, for sales of Diesel oil. In every instance they insisted that the contract be based in relationship to the spot-market quotation for heating oil as published in Platt's.

Mr. SNYDER. What is the difference between the Diesel-oil quotation and the heating-oil quotation in cents?

Mr. TRAVIS. That varies with the season. The usual difference is around a half a cent a gallon—heating oil being on an average one-half cent lower.

Mr. SNYDER. In winter?

Mr. TRAVIS. I mean for the over-all period. Now, the mischief of this type of contract—and yet they are the largest buyers, and if we couldn't sell gas oil, we were almost dependent upon them—was this: The independent refiner, as I pointed out before, refines 40 or 50 percent of his crude oil into gas oil or Diesel oil and the same oil might be used or utilized as heating oil. The independent refiner has neither the financial or the physical facilities to store gas oil during the period of low seasonal demand as heating oil, and he has to sell it. The Asiatic insist upon buying high Diesel, or whatever Diesel index gas oil they want, in relationship to the heating-oil season. The heating-oil season has a period of about 4 months a year when it is firm and the rest of the year it is weak, and susceptible to fluctuation, and is very sensitive.

Mr. HENDERSON. First of all, do you know what countries the Asiatic buys for?

Mr. TRAVIS. The most, or a great deal, of the gas oil that I have sold them in the past was shipped to England. I think they are associated with the Royal Dutch Shell, one of that group.

Mr. HENDERSON. When you talk about the independent and his difficulties as to storage, and therefore his susceptibility to the market, I have two questions on that. In these 4 months when demand is firm for heating oil, did you say independents ever have any difficulty in getting a supply of crude?

Mr. TRAVIS. We contract the bulk of our crude requirements from year to year.

Mr. HENDERSON. Have you ever had any trouble in getting all that you wanted?

Mr. TRAVIS. No.

Mr. HENDERSON. Now, on the next part of the question, in the 8 months when you say the market is not firm, do I gather that the buyers know very well the independents' position, that they have to sell and they traffic in it pretty extensively?

Mr. TRAVIS. That is correct.

Mr. HENDERSON. So you get a condition which you would call an unstabilized or chaotic market about 8 months of the year?

Mr. TRAVIS. In relationship to gas oil—yet, mind you, the Diesel-oil season is coincident with the gasoline season. It so happens that Europe has gone to Diesels to a much greater extent than we have in this country and for that reason the demand is abroad rather than at home.

Mr. HENDERSON. Well, I gather from your testimony that you thought the Asiatic did take advantage of that? Did they or any large buyers ever drive the price down below your costs?

Mr. TRAVIS. Yes, sir.

Mr. HENDERSON. Is that frequent?

Mr. TRAVIS. During the last 2 years up to recently it has been almost constant or at least for the best part of a year and a half.

Mr. HENDERSON. That would mean, from the gravity of your testimony, that foreign buyers are getting our natural resources at less than cost?

Mr. TRAVIS. Unquestionably.

Mr. HENDERSON. And they were able to do that on account of the relative power and size of the buying as against the relative weakness of the selling instrumentality?

Mr. TRAVIS. That, added to a bad inventory position that occurs periodically during the last 2 years within our own industry.

Mr. SNYDER. Is it necessary to sell to the Asiatic Petroleum Co.? Are there any other purchasers?

Mr. TRAVIS. The other purchasers have during the last 2 years been materially reduced, greatly reduced. The political condition in Europe is such that the totalitarian States buy on a trade-and-barter basis, in Rumania and other places, and the independent distributors, many of them who formerly were large buyers, have ceased to exist and gone out of business.

And during the last year and a half the Asiatic Petroleum Co. has been the largest buyer of gasoline and gas oil.

Mr. SNYDER. Are they purchasers of gas oil in such quantities that they set the gas-oil export spot market?

Mr. TRAVIS. You have an anomaly there. Platt's post a Diesel price and also post a heating-oil price, a furnace-oil price.

(The vice chairman assumed the Chair.)

Mr. SNYDER. The way you have explained it, I don't see that Asiatic's purchases affect either of these prices, do they?

Mr. TRAVIS. The Diesel-oil price remains more or less stationary and the heating-oil price fluctuates for about 8 months of the year downward and then is constant.

Mr. SNYDER. They are buying on a heating-oil market and as far as you know selling on a Diesel-oil market.

Mr. TRAVIS. That is right.

Mr. SNYDER. Now in regard to the statistical reporting, what you call ingredient No. 7,¹ did you ever make any attempt to have the American Petroleum Institute change their system of reporting?

Mr. TRAVIS. I did.

Mr. SNYDER. How did you go about bringing it to their attention?

Mr. TRAVIS. I wrote a letter of October 20, 1938, to Mr. Axtel J. Byles, president of the American Petroleum Institute, and made some criticism and some suggestions, and a copy of this letter and the en-

¹ Supra, p. 7272.

closure I herewith hand you. In this letter I also requested the opportunity of addressing the American Petroleum Institute in connection with some of these things, and others, and Mr. Byles was kind enough to extend an invitation, which I accepted, and had the opportunity of reading this particular paper in November last at Chicago at the A. P. I. meeting. I offer that.

Mr. SNYDER. Mr. Travis, in your letter to Mr. Byles you made some suggestions for eliminating what you believed were the evils of the reporting system?

Mr. TRAVIS. I did.

Mr. SNYDER. Would you mind putting these in the committee's record, the letter and the speech?

Mr. TRAVIS. No; I offer them for this record.

Mr. SNYDER. Mr. Chairman, Mr. Travis offers his letter to the American Petroleum Institute and his speech before their board of directors as exhibits to supplement his testimony.

The VICE CHAIRMAN. Are they submitted for the committee? I am not familiar with the practice of the committee.

Mr. HENDERSON. I suggest, Mr. Chairman, that they are proper for admission.

Mr. SNYDER. It saves the time of reading them.

The VICE CHAIRMAN. They may be admitted.

(The letter and manuscript referred to were marked "Exhibits Nos. 1175 and 1176," respectively, and are included in the appendix on pp. 7512 and 7515.)

EXCESSIVE MARKETING COSTS IN DISTRIBUTION OF GASOLINE AND OIL

Mr. SNYDER. In your statement you discussed the subject of diffused distribution. What is diffused distribution?

Mr. TRAVIS. Well, it is just the opposite of concentrated distribution. What I mean by that is this: If a commodity is distributed in myriads of places to where the volume is small, the cost of distribution becomes excessive.

Mr. SNYDER. For instance, do you mean selling gasoline at a small service station at the rate of 250 gallons a day, for instance, as contrasted with selling 5,000 gallons at another service station?

Mr. TRAVIS. Selling gasoline in amounts of two or three hundred gallons a day to my estimation is the result of too many stations, and the cost—it is obvious, most any station, as an example, needs two or three employees. When you consider even the low prices paid for help in the filling station business, you have costs of \$10 or \$12 a day resulting. If you divide 250 gallons a day by \$10 a day as the cost, the overhead cost, you have a cost resulting of 4 cents a gallon for merely taking the gasoline out of the pump and putting it into the automobile. That is almost as much as the refiner gets, which represents the producer and the transportation and the refining of the gasoline.

Mr. SNYDER. How would you go about eliminating this situation?

Mr. TRAVIS. Merely by the creation of master filling stations. I would first of all suggest that the Government once and for all set up specifications as to what constitute the various grades of gasoline.¹ Now it might be argued that the changes in the automotive

¹ On the subject of standards and specifications of commodities generally, see Hearings, Part 8.

industry are such that these specifications would not be possible and so I would say, anticipating that criticism, that the evolution of the gasoline motor has leveled off. They have reached the top of high compression and some of the companies have even backed away from it. To divert just a moment, the automobile engine has been increased in capacity of horsepower.

The VICE CHAIRMAN. Mr. Snyder, may I inquire of you and your staff, what is the point of this testimony?

Mr. SNYDER. Mr. Travis in his statement thinks he has a solution for saving many millions of dollars to the public, which is the overhead of gasoline filling station operation, and which the public pays for by having the various stations selling small quantities with a labor bill of many cents above the price which the gasoline leaves the refinery, and he thinks he has a solution for this problem. He believes it will reduce the price of gasoline to the public.

The VICE CHAIRMAN. Don't you think you are going pretty far afield so far as this investigation is concerned?

Mr. SNYDER. I think that is up to the committee to decide whether they are interested.

The VICE CHAIRMAN. Personally I don't have a very definite opinion myself, but I shouldn't say improvements in automobiles had anything to do with this inquiry we are trying to conduct.

Mr. SNYDER. Are there any other matters you wish to bring before the committee?

Mr. TRAVIS. In corroboration of the statement of the cost of distribution being some 140 percent, I would offer the National Petroleum News issue of January 11, 1939, which shows a graph of comparative figures for 5 years and of the direct intention of the period of 1938, the weighted average tank car price on the spot market for 12 markets as against the average station price for gasoline exclusive of tax in 50 cities throughout the United States. This differential represents some 8 cents a gallon.

Mr. SNYDER. This 8 cents is a differential between—

Mr. TRAVIS (interposing). The spot market tank price as an average price—we usually can't get the average price, we have to sell on the low—and the service station filling price exclusive of tax.

Mr. SNYDER. And that includes the freight from the refinery to distributing point?

Mr. TRAVIS. That is right.

Mr. SNYDER. And includes the retailer's margin.

Mr. TRAVIS. And the jobber's margin.

Mr. SNYDER. The jobber's margin.

Mr. TRAVIS. That is right. There is a spread of 8 cents which on 6-cent gasoline will be the equivalent of 133 percent.

Mr. COX. The witness has offered this chart. We have no objections to its being entered in the record if the committee desires.

The VICE CHAIRMAN. The committee will consider it. My colleague makes inquiry as to the source of this information. You mean this whole book?

Mr. TRAVIS. Just that particular page.

The VICE CHAIRMAN. The committee will consider it.

Representative WILLIAMS. What is the source of the information upon which that graph is made.

Mr. TRAVIS. The National Petroleum News is a trade publication and this is their gathering and interpretation of the markets through-

out the United States, tank wagon spot market and the filling station market, and they say down below the graph, covering 50 cities throughout the United States.

The VICE CHAIRMAN. Just this one page?

Mr. TRAVIS. Yes, sir.

(The chart referred to was marked "Exhibit No. 1177" and is included in the appendix on p. 7520.)

The VICE CHAIRMAN. Are there any other questions?

Mr. O'CONNELL. Mr. Travis, I understood you to say that it was the generally accepted theory of proration that its purpose is to bring the supply of crude in equilibrium with the demand for gasoline and other petroleum products. Is that correct?

Mr. TRAVIS. That is right.

Mr. O'CONNELL. Had you heard it suggested that there was at least large justification given for the policy of proration on the grounds of conservation?

Mr. TRAVIS. Well, the interpretation of conservation as made by the Railroad Commission of Texas is that crude oil produced in excess of market demand constitutes waste, and therefore would be conservation to maintain apparently between supply and demand.

Mr. O'CONNELL. Were you here the other day when Dr. Pogue was explaining proration?¹

Mr. TRAVIS. I was not.

Mr. O'CONNELL. As I understood his testimony, it was to the effect that conservation involved operating oil wells at a rate which would produce the optimum of crude oil over the life of the well.

Mr. TRAVIS. Well, unquestionably proration as it is practiced now has gone far beyond that state. When you have a condition with wells capable of producing in excess of a thousand barrels a day and are permitted to produce only 20 barrels or 21 or 22 barrels, it is obvious that they have gone beyond that stage of conservation.

Mr. O'CONNELL. Would it be fair to say that in your opinion proration as it is practiced is primarily for the purpose of controlling supply rather than for achieving a broad policy of conservation?

Mr. TRAVIS. That is right.

Mr. SHAUGHNESSY. Mr. Travis, I would like to follow up Mr. O'Connell's question as to proration being partially a function of price. You stated that your company makes more money when the price of crude is high. Would that apply if the price of crude were not fixed?

Mr. TRAVIS. Yes, I think so, for this reason. If the price of crude were not fixed you would have chaos altogether.

Mr. SHAUGHNESSY. By "chaos" do you mean fluctuating prices?

Mr. TRAVIS. It is more than that. You would not be able to plan; you wouldn't be able to refine; you would buy something, and you wouldn't know what you could hope to get, and it would be chaotic; that is just the only word that I can think of.

Mr. SHAUGHNESSY. It might be competition, though, mightn't it?

Mr. TRAVIS. It might be competition, but I don't think that it is the purpose or that it is desirable to have an industry to become so competitive that bedlam ensues, because that will in the end destroy the industry.

¹ Supra, p. 7113 et seq.

Mr. SHAUGHNESSY. But, assuming that that is true, didn't you start your refinery originally on very little capital?

Mr. TRAVIS. We acquired production; we started the refinery on modest capital.

Mr. SHAUGHNESSY. And didn't your refinery grow very rapidly prior to 1934?

Mr. TRAVIS. No. We made more headway after 1934,—'34, '35, '36—at Texas City than we did back in the small plant that we had at Kilgore.

Mr. SHAUGHNESSY. But you did make a substantial investment at Kilgore on the basis of your earlier profits, didn't you?

Mr. TRAVIS. We made a substantial investment. We felt that eventually as we made money producing—we were fortunate there; we invested it in refining facilities—and we felt that eventually the thing would steady down; and in that connection I wish to say that we did not make much money when you had a chaotic price condition in the east Texas field.

Mr. SHAUGHNESSY. You did make enough to build the refinery at Texas City.

Mr. TRAVIS. That was money that we made in the producing business rather than in the refining business, and that was a matter of chance. If you buy leases and they become proven and become valuable; as a matter of fact, to build our plant at Texas City we sold off quite a number of wells that we had in the east Texas field.

Mr. SHAUGHNESSY. In other words, the governing basis of the building of your refinery system was the profit that you made from crude oil?

Mr. TRAVIS. More than it was from the refining, in the early stages, and then when we built our plant at Texas City we were able to make money at Texas City, and the conditions had become quite well stabilized.

Mr. SHAUGHNESSY. And then you were able to make money despite the existence of the spot market?

Mr. TRAVIS. In spite of it.

Mr. SHAUGHNESSY. Until you got the export last year?

Mr. TRAVIS. Until the excess inventory piled up in 1938, and until crude-oil price concessions became the order of the day to export buyers of crude oil.

The VICE CHAIRMAN. Any further questions?

Mr. TRAVIS. I wish to thank you, gentlemen, for your courtesy.

(The witness, Mr. Travis, was excused.)

The VICE CHAIRMAN. Mr. Dailey.

Do you solemnly swear that the testimony which you are about to give will be the truth, the whole truth, and nothing but the truth, so help you God?

Mr. DAILEY. I do.

TESTIMONY OF JOHN B. DAILEY, HOUSTON, TEX.

The VICE CHAIRMAN. Mr. Dailey, I am advised that you have a statement prepared to be offered for the record.

Mr. DAILEY. Yes, sir.

The VICE CHAIRMAN. Will you proceed, please?

Mr. DAILEY. I do not have that statement in my possession.

The VICE CHAIRMAN. I understand that you will summarize this statement, and then you want to offer the statement in the record, as I understand it. It may be received as an exhibit.

(Mr. Dailey's prepared statement was marked "Exhibit No. 1178" and is included in the appendix on p. 7520.)

The VICE CHAIRMAN. Tell us who you are and give the committee some explanation that will identify you and your interests and the reason for your presence.

Mr. DAILEY. Mr. Chairman and members of the committee, my name is John B. Dailey, of Houston, Tex., and I am not an oilman. My business experience has been related to other fields except for a brief experience after the war as a roughneck on the drilling rig. That is the work on the derrick floor. Up until 2 years ago, when I went down to Houston, I was faced with the problem such as any layman might be, having a lease of land in an oil field. That is my connection with the oil industry, and I will say more or less that my statement which I have filed is more testimony of just what happened rather than as an oilman qualified to give any technical opinion.

Mr. Cox. You may proceed.

The VICE CHAIRMAN. The counsel has some familiarity with the testimony that is supposed to be developed from this witness?

Mr. Cox. I haven't seen all of the statement.

The VICE CHAIRMAN. I don't know what the practice is, but I assume counsel will proceed to develop the testimony as though this witness had been called by some member.

Mr. Cox. The procedure heretofore followed has been that the witness gives a short summary of the statement. I think Mr. Dailey will give a summary of his statement.

PROBLEMS OF AN INDIVIDUAL IN OBTAINING DRILLING PERMIT IN TEXAS OIL FIELD

Mr. DAILEY. In a short paragraph of a few lines I can condense here reference to the substance of my statement filed with the committee. In one of the great oil fields of the Texas Gulf States there is a 20-acre tract of land owned in fee by my family for 20 years. It is owned by my mother and uncle, who acquired it by inheritance from their father. Oil wells have surrounded this property for 2 years, draining their oil and gas and confiscating their position in this field, while for 17 months they have failed to obtain a drilling permit from the Railroad Commission of Texas, which would enable them to have their property drilled. Both being between 65 and 70 years of age, with the time drawing short that they may enjoy the material benefits from the oil land which they have owned, they are forced to watch the dominant oil interests in this field confiscate their property by the arbitrary denial of a drilling permit by this Texas oil-regulatory body.

This is an old-fashioned oil squeeze play in the new oil-conservation system. With this situation in mind I have listened with great interest to the urbane comments of some of the witnesses of the American Petroleum Institute, especially on the wonderful equity of conservation principles called unitization in an oil field. I saw a cross section of a 7-inch steel casing pulled out of a suitcase.¹ I saw

¹ The mechanical device exhibited by Dr. Pogue. See p. 7114, supra.

exhibited a cross section of an eighth of an inch choke. That is the choke that has strangled independent refiners and marketers out of business; that is the choke that strangles small independent producers; that is the choke by which major oil interests devise to drive lease and royalty values down; that is the choke which squeezes almost the last drop of the oil owners' or landowners' oil from them. Maybe that is the choke that my relatives' drilling permit could not pass through.

As I have made a detailed statement, I will here summarize only briefly my testimony referring to this oil-field situation, and also comment a little on production control by States. This situation concerns the Old Ocean oil field in Brazoria County, Tex., which is one of the great oil and gas reserves on the Gulf coast of Texas in the early stages of its development. Up to the fall of 1937 the then sole operators in the field were the holders of over 13,000 acres. This development was then owned by four men through their personal companies, J. C. Karcher, E. DeGolyer, and D. J. Harrison, and J. S. Abercrombie. The latter two men, through their personal companies, the Harrison Oil Co. and the J. S. Abercrombie Co., were in charge of the operations.

In the late fall of 1937 the DeGolyer and Karcher holding was disposed of to the Harrison-Abercrombie interests. Up to September 1937 there were only five wells completed in this field on the holdings of the above operators. However, there was this 20-acre tract in the center of the field owned in fee by my family for 20 years, which was not then and has not now been leased to these operators. In my statement the period covered from the first part of September 1937 to June 1938 refers to various tactics of oil interests to prevent any drilling being done on this property as an independent unit by anyone.

The period in the statement from June 1938 to June 1939 covers testimony relating to the inability of the fee owners of 20 years to obtain a drilling permit from the Railroad Commission of Texas and the lower courts of Texas, while the oil interests in this field drilled wells as rapidly as possible with the operation of several drilling rigs, until there are now about 40 completed wells, some surrounding our property on the east, west, and north. Some of these wells adjacent to our property are draining some of our own oil and gas, according to good technical opinion, and our valuable subsurface rights are thereby being confiscated daily. We appear to be fenced out of our own property. They grow rich while I grow weeds.

On May 2, 1939, the Railroad Commission of Texas granted a permit to drill on a leasehold of 1 acre in the Old Ocean field.

It is an almost unbelievable situation, without parallel, I understand, in the history of the administration of this oil regulatory body in Texas, where for over 1 year they have refused to give a permit on a 20-acre tract owned in fee, and are now opposing it in the courts; yet they have just recently granted a permit on a 1-acre tract which is a leasehold only recently acquired.

This recent decision of the Railroad Commission of Texas to grant a permit to drill on a 1-acre leasehold is quite in accordance with law and precedent. However, the effect of this arbitrary and confiscatory ruling denying us a permit to drill a well on our own 20 acres of oil land was to place us in the position whereby we must

trade with these oil operators on their own terms in order to get any oil income, for if a drilling permit could not be obtained, we could not trade with anyone else on any terms whatever. Hitler in Germany or Poland could not confiscate property any more completely than this.

Here are these oil operators taking out for several years approximately \$200,000 worth of oil annually from each of their wells, under restricted allowables, and some of their wells draining from several separate sands under our land, while for 2 years since our property has been in the class of proven or near proven oil land and we have been prevented from getting anything but weeds while they took the oil.

This situation points to some of the bad characteristics of the so-called "unitized operation" in oil fields, which in fact means "monopolized operation" under a unified operating interest whereby everybody but the monopolizers get crucified.

It also indicates the grave abuses which occur under this so-called conservation program, in name administered by States under the theory of State rights, but in fact administered by the invisible government of the great oil interests themselves. It illustrates the dangers of these so-called quasi-judicial oil boards under maladministration and shows why all of these boards, both National and State, set up by Congress or State legislatures, need to be constantly supervised by the legislative bodies which delegated great but vague powers to them.

We are having increasing government in this country by quasi-judicial boards. If in the various Federal boards there ever occur the conditions which have been and are the order of the day in some of these various State oil regulatory bodies controlled by the great oil interests, then the liberties of the people under constitutional government will disappear. The story of Louisiana is beginning to come out, but Louisiana is not the only State which has oil.

I have no quarrel with the principle of conservation of national resources or with the principle of orderly production of oil or any other commodity, but under this proration of oil production by States, under the control of the major oil interests, serious abuses have arisen. Some States really produce without restriction and some States do not. Due to glaring injustices on one hand and gross favoritism on another as to one State against another, and as to one field against another within States, the whole structure is on the point of tottering because of the growing dissatisfaction with it.

The concentration of oil reserves in a few hands today is a menace to future generations of tomorrow, and the State of Texas, where are located over one-half of the now proven reserves of the country, is the strategic position under this oil-proration program. In connection with State oil proration I should like to quote from an opinion in a decision by a chief justice of the Supreme Court of Oklahoma as follows:

In my opinion, proration of oil was borne of monopoly, sired by arbitrary power, and its progeny (such as these orders) is the deformed child whose playmates are graft, theft, bribery, and corruption.

In the study of this proration program, which is primarily the allocation of markets for the convenience of the great oil interests,

allowing for manipulation of markets and prices and ruthless monopolistic practices, the quotation above may will be pondered. Irrespective of how proration of oil was born, today general opinion seems to be that an uncontrolled oil flow would cause chaotic demoralization. At the same time, under the present loose set-up of State regulation, vicious evils exist in the so-called oil-conservation system which can only be eliminated by the Federal Government taking a dominating part in the oil-proration program.

That was a great statement by the chief justice of the Supreme Court of Oklahoma, and I wonder how he would have characterized this order of the oil-regulatory body of Texas on September 27, 1938, denying my family a permit to drill a well on their own land after delaying action for almost 4 months after the date of the permit hearing on June 8, 1938, and after the date of the filing of the permit—about the middle of May 1938.

The VICE CHAIRMAN. Are you going to state before you conclude the grounds upon which the commission declined to give you the permit?

Mr. DAILEY. I haven't stated that, but I thought I would answer that question or I would state it.

The VICE CHAIRMAN. I will ask the question now then.

Mr. DAILEY. The copy of that order just said there wasn't sufficient reason for granting a permit.

Mr. Cox. Well, Mr. Dailey, there is a 40-acre spacing rule, isn't there?

Mr. DAILEY. Oh, yes. I forget that you people are not familiar with this. In this conservation program the State authorities set up spacing rules. Now, in this particular field their spacing order says that wells shall be not closer than 1,320 feet to each other and they must be 660 feet from adjacent property lines. Now, of course, that order doesn't say you have to have 40 acres to drill a well. That is a spacing program, but it is equivalent in meaning that if you have one of these drilling plots that has to be an exact square composed of 40 acres.

Well, of course, that would confiscate property and that is covered in the law of Texas under what they call rule 37, whereby you go through a certain procedure and you get what they call an exception to the spacing rule. Now, for example, in the East Texas field, which is composed of about 130 acres, they have 27,000 wells. Now, if East Texas were drilled on a 10-acre spacing basis, there would be 13,000 wells, so that means that probably three-fourths of the permits in the East Texas field were granted as exceptions to this particular spacing rule.

Now, in this Old Ocean field, for instance, Harrison-Abercrombie, the principal operators, all of their drilling tracts are not exact squares composed of 40 acres. They are lop-sided and rectangular and they come closer to property lines than the rule of one well to 40 acres, and they get exceptions, but I haven't been able to get an exception. In other words, the railroad commission has granted—

The VICE CHAIRMAN. You have got just half of 40 acres.

Mr. DAILEY. I have 20.

The VICE CHAIRMAN. That is half of 40, so you couldn't get a well until you could get somebody else to contribute 20 acres to the effort. Is that the ruling?

Mr. DAILEY. No; that isn't the rule; that is compulsory pooling; the laws of some States have that, but they do not have that in the State of Texas.

The VICE CHAIRMAN. I didn't want to go too far afield about that. I think we won't pursue that particular phase of the matter further, if you please.

Mr. DAILEY. That was a great statement by the chief justice of the Supreme Court of Oklahoma, and I wonder how he would have characterized this order of the oil-regulatory body of Texas on September 27, 1938, denying my family a permit to drill a well on their own land, after delaying action for almost 4 months after the date of the permit hearing on June 8, 1938, a very unusual situation in itself, for normally such permits are granted as a matter of course and promptly. This arbitrary order was in effect the bare-faced confiscation of our property. The Railroad Commission of Texas obeyed the commands of these powerful oil interests, who demanded that unless we surrendered over our property to them on their dictated confiscatory terms, that we should not be allowed to get a single barrel of oil from our land.

Mr. HENDERSON. Mr. Chairman, could I interrupt there? I think that is quite an important statement the witness has made. In other words, in effect, if I gather what you have said, Mr. Dailey, the order was dictated by the major oil companies?

Mr. DAILEY. I don't know that I would put it that way.

Mr. HENDERSON. Will you go back and read the sentence, then?

Mr. DAILEY. Yes, sir. The Railroad Commission of Texas obeyed the command of these powerful oil interests, who demanded that unless we surrendered our property over to them on their dictated confiscatory terms, that we should not be allowed to get a single barrel of oil from our land.

Mr. HENDERSON. What is the basis for—I don't see the distinction you made between what I said—

Mr. DAILEY. May I quote briefly from the hearing, which is a part of the official record and which you have? On June 8, 1938, in this permit hearing, the operators intervened against the granting of a permit on this 20-acre tract which was located in the center of it. Without going into their objections, they concluded by stating—and I can't remember the exact words; they are a matter of record—they would ask the commission to deny a permit on this property unless we would agree to pool the property with them, sharing half the expense, and that if we would not agree to do that, then they asked that the railroad commission deny a permit to drill on the property.

Mr. HENDERSON. I understand that, and I have been over that, but I am getting to what is the import of your testimony as to whom the commission obeyed.

Mr. DAILEY. I will say this—

Mr. HENDERSON (interposing). There was a formal hearing?

Mr. DAILEY. There was a formal hearing, and they said they would ask—of course, if I had this record here, I would read it. It is in the file.¹

Mr. HENDERSON. I have been through it, but I am getting at this particular language.

¹ "Exhibit No. 1178," appendix, p. 7520.

Mr. DAILEY. In other words, they stated the terms which they would pool 20 acres of their leases with our 20-acre field.

Mr. HENDERSON. Do I take it that in any proceeding where there are two parties, if the judiciary grants to one party what it begs, it is obeying the dictation of that group?

Mr. DAILEY. Now, I might not have stated that properly, Mr. Henderson.

Mr. HENDERSON. What I am getting at is whether there is anything other than this record on which you base your idea that the Railroad Commission of Texas actually was under any undue influence of these intervening parties.

Mr. DAILEY. I haven't said that. I said that these operators, whether you call it "ask" or "demand," that is verbiage—

Mr. HENDERSON. Usually "beg," but go ahead.

Mr. DAILEY. They said if these people will once agree to pool 20 acres with us and go into partnership with us, then we ask that the Commission deny this permit. That was the substance of it. We refused to do that, on the basis that it could confiscate our property. I will explain later why.

The VICE CHAIRMAN. You had better do it now.

Mr. DAILEY. In the first place, in a pooling agreement these operators were owners of leaseholds. They did not own the royalty of the acreage around this tract of ours. Now to make a pooling unit, you not only have to get the permission of the leaseholder of the surrounding acreage, but you have to get the permission of the royalty owners.

In this particular tract, we are in the center of a 400-acre field. That royalty has been bought, it is split up. As it has been explained to me in Texas, the owner of a little fraction of that royalty could hold up a pooling agreement. We had no evidence, in the first place, that they could do what they said they would do. As a practical matter, of course, my mother and uncle simply didn't have the means to put up fifty or sixty thousand—two individuals between 65 and 70—and go into partnership with two oil corporations on a working-interest basis.

The history of working-interest agreements is bad. In addition to that, they proposed to drill one well. Now, in this particular field there are several productive sands. In several wells surrounding our property, from the evidence I have, they are drilling from several different sands. If we pooled the tract with them, that would mean that they would equally own with us half of each sand, but they would only drill a well to one sand, so we would only get oil out from under our property in one sand; whereas they, having wells around us, draining from several sands, would get oil from each sand that is under us.

Mr. HENDERSON. And you would have no participation in that?

Mr. DAILEY. None. I don't know whether I have explained that or not.

The VICE CHAIRMAN. You have made a very clear explanation. I think the committee understand what you are trying to convey. Right on that point, though, before you proceed, is there any arrangement, custom, or law under which, if you had entered into this

agreement, they would have been required to have gone through each sand from which they were draining in the neighborhood?

Mr. DAILEY. I think so; yes, sir. I think there is a law in Texas—it has been explained to me and I am just quoting other people's opinion, because I don't know—but the laws of Texas are that when you drain from a producing horizon or oil sand, you are draining from a common reservoir; and if, for example, we can drill this and operate it as a separate 20-acre unit, then if they had a well offsetting us on, say, sand No. 1 on the east, and on sand No. 2 on the west, we could make the leaseholder, for example, of this property either drill a well to both sands or forfeit his lease. Now, that comes under the laws of Texas relative to offset. I may be wrong about that; that is the way it has been explained.

From newspaper reports, the president of the American Petroleum Institute recently stated in Houston, Tex., that one trouble was that the industry had not tried to sell itself to the public. I should like to ask him how the revelation of the real truth about the so-called oil-conservation system, as now administered, is ever going to sell the oil industry to the public. The history of the oil business is what it is because when monetary stakes are large, as they are in oil fields, human nature is what it is.

As stated above, the sole operators of the Old Ocean oil field up to recently were the Harrison-Abercrombie interests, holding over 13,000 acres. In February 1939 the Sun Oil Co. completed their first well on their 600 acres of leases and have since been completing additional wells. The Midcontinent Petroleum Corporation has also completed two wells on their 90-acre leasehold this summer. These are the three operating positions in the Old Ocean oil field who take the oil, while my operating position of 20 acres can only take its weeds.

On June 9 1938, the petroleum engineer of Harrison-Abercrombie testified under oath during cross-examination that the producing section of the Old Ocean field was composed of about 2,000 feet of oil and gas sand. To illustrate the magnitude of this reservoir, many fair oil fields have only 10 feet of sand, and the great East Texas field, so I have been informed, will probably not average more than 30 feet of sand. If the statement of the operators' engineer is correct, the Old Ocean field has the greatest sand body ever found in this country, and the forecasts of some may be correct that it is the greatest oil and gas reservoir in the world and will produce for more than 100 years.

Rich, ruthless, and rapacious as many factors of the oil business have often been, and while the mixture of oil and politics has sometimes produced a slimy substance, has it gotten to the stage in this Nation, under so-called oil conservation, that a small landowner has constitutional rights when his property is farm land but has no such rights when it is oil land? What do the civil-liberties statutes mean if oil interests can deprive him of his constitutional rights and privileges when his swampland becomes oil land?

Since my family and I have this valuable tract of land owned in fee for 20 years, which is now in the center of one of the greatest oil fields in the United States, and have not cleverly taken it away from someone who lived in a swamp after oil was discovered, and yet we

are unable to get even a permit to drill a well on our own property, I should like to ask this committee: Does the Constitution of the United States and the State of Texas function any longer in Texas, and am I living in a free democratic country, or am I not?

The VICE CHAIRMAN. Any questions? I assume that this statement, Mr. Dailey, is submitted by the committee or you or somebody for the record.

Mr. DAILEY. Yes, sir.

The VICE CHAIRMAN. It seems to have been carefully prepared.

Mr. HENDERSON. Mr. Chairman, the procedure, I think, was established while we were, unfortunately, without your participation in the committee's deliberations. This is a different type of presentation from that we originally had, when individual members from administrative agencies came in and made a presentation. This is a full committee's authorization, and the oil industry was asked to participate, with the understanding also that we would ask various technical experts in the Government to be of assistance to the full committee, and that when presentations were made we would draw on them for pointing up the testimony. That is the reason why counsel and experts from the Department of Justice are assisting in this work.

The VICE CHAIRMAN. Thank you, sir.

Please proceed, Mr. Cox.

Mr. Cox. Mr. Dailey, I want to be sure that the record is clear on this procedure that you went through before the Railroad Commission. You applied for a permit which permits you to drill on your 20-acre property, is that right?

Mr. DAILEY. Yes, sir.

Mr. Cox. And that was denied?

Mr. DAILEY. Yes, sir.

Mr. Cox. Did you appear at that hearing through counsel and present evidence?

Mr. DAILEY. I appeared with counsel.

Mr. Cox. And presented evidence to the Commission in support of your application?

Mr. DAILEY. I didn't. I was just present, but my attorney did, and petroleum engineer.

Mr. Cox. Did you apply for a rehearing after the denial?

Mr. DAILEY. We did.

Mr. Cox. And was the rehearing denied?

Mr. DAILEY. That was denied; yes, sir.

Mr. Cox. Is there any provision in the law of Texas for judicial review of administrative orders of that kind?

Mr. DAILEY. Yes, sir.

Mr. Cox. Did you take advantage of the judicial procedure that was provided by the law?

Mr. DAILEY. Yes, sir; I appealed to the lower courts of Texas, and that was heard, I think it was March 13, 1939, and they upheld the Commission, and I have appealed to the court of civil appeals in Austin, where it is being heard, I think, sometime in October.

Mr. Cox. Mr. Dailey, is it your opinion that this situation of yours is typical in any way of landowners in oil fields, or is it an extraordinary and rather bizarre incident?

Mr. DAILEY. You mean experience about the permit?

Mr. Cox. Yes.

Mr. DAILEY. I have only been in Texas for 2 years, Mr. Cox, and what I can say about that is only partly what I have heard and the evidence about the granting of these permits as exceptions under rule 37. I have been told that never in the history of the oil-regulation body in Texas has there been such a strong case for an exception under rule 37, because it is one of the rare types when the landowner has sort of been made an oil company by having his oil land proved up, and he owns it in fee and has a strong position. And furthermore, 20 acres in a field of this kind, for an individual, is a very nice holding, and I believe that Old Ocean is the only field on the Gulf Coast of Texas that has a 40-acre spacing rule. In the Hastings field, in the same county, there is a 10-acre spacing rule. They have two wells on 10-acre plots because they are two sands. And in Fairbanks field, in adjoining Harris County, they have a 10-acre spacing law. In the West Columbia field, in the same county, which is a different kind of dome, they don't have spacing rules there, and so anybody drills as many wells and as close together as they want.

The VICE CHAIRMAN. May I ask a question? In this tract that you speak of in the big oil field, are there many small tracts?

Mr. DAILEY. You mean the original land ownership?

The VICE CHAIRMAN. Yes.

Mr. DAILEY. Yes, sir. I have broken that land ownership down in my statement. There are fewer small tracts than there usually are.

The VICE CHAIRMAN. Was any effort made by these companies to lease your land prior to the time you began to make efforts to get wells?

Mr. DAILEY. We gave them any number of opportunities to drill it. They refused to drill it unless we would pool it.

The VICE CHAIRMAN. I know; but I asked you if they made any effort to lease this land.

Mr. DAILEY. Oh, yes, sir; they first had this lease in the summer of '34. They found a discovery well in the fall of '34.

The VICE CHAIRMAN. I don't want to go too far afield, but they did make an effort to lease your property when they were leasing up the country generally?

Mr. DAILEY. Yes; but we wouldn't lease it under a pooling agreement.

The VICE CHAIRMAN. Were there any of your neighbors owning small tracts who also refused, that you know of?

Mr. DAILEY. I have heard some did for awhile, but as far as I know they have all pooled.

The VICE CHAIRMAN. Yours is the only tract insofar as you know in the big acreage mentioned by you sometime ago that isn't covered by lease?

Mr. DAILEY. That is right; correct; yes, sir.

Mr. Cox. Wouldn't it be fair, then, to say, Mr. Dailey, that harsh and unjust as this situation may be with respect to you and your property, it isn't a typical situation which can be regarded as posing some general problem as to the administration of proration laws?

Mr. DAILEY. I should say from what I know about it in Texas that this is not a typical situation, because Texas has no compulsory pooling law. It has been said to me that this is the first effort of the oil

interests to get a court decision which practically enforces compulsion, but there is nothing in the law of Texas which would enforce it, and heretofore I don't know of any instance that they have turned down, any exception. Why, they've got wells on a tenth of an acre in the east Texas field. The Railroad Commission has given a permit on a 1-acre lease.

Mr. BALLINGER. Isn't your case also a little peculiar? As I understand it, having read some of this before I came here, isn't it your contention that your 20 acres are at the top of the dome? I mean, in other words, if you would start drilling on that property now you would tap a good deal of the whole field, wouldn't you?

Mr. DAILEY. Well, I don't know about that, Mr. Ballinger. I am not at all satisfied with the information that I have got about the Old Ocean field, and I spent 2 years trying to get it. Now, exactly where we are on this structure as with reference to the top of the dome I couldn't say, because there hasn't been the drilling in the south section of the field to finally tell where is the top.

Mr. BALLINGER. Have you any reason to believe from things you have heard that you are somewhere near the center of that dome?

Mr. DAILEY. I will put it this way: The people that have talked to me have said that we were situated in probably the most favorable part of the field.

Mr. BALLINGER. Now, if you were situated in the center of that dome, that might explain the extraordinary activity to prevent you from drilling, wouldn't it?

Mr. DAILEY. I don't think that that would be the reason; no, sir. Of course, I don't know what the reason is. I can give you some reasons which are opinions—opinions of others. They may not be correct.

Mr. BALLINGER. With respect to these other people who leased their property, how do you explain that? If you thought that the leasing terms offered you were bad, why is it that these people sort of folded up and went right along?

Mr. DAILEY. Well, Mr. Ballinger, we leased them this property in the summer of '34 for about the same terms that other little tracts had, I imagine—I have never seen it; but we put a drilling provision in there, and after the discovery well came in, for some reason or other they didn't drill, and naturally when you've got a piece of acreage that is within the possible productive area of a new well, you should have better terms, and, of course, when it is proven you should have still better terms. Now, that is just like an oil company, if they have got, suppose, a tract of proven land in a field, they are not going to turn it over to another oil company on the same terms as originally when it was so-called wildcat territory.

Mr. BALLINGER. When this property was leased, why didn't they drill?

Mr. DAILEY. Well, of course, I don't know why they didn't drill it. I could give you a lot of reasons which I think, but I don't know why.

Mr. BALLINGER. It seems odd to me; I mean I just can't get it. They had the lease, they could take the oil out, the terms were all drawn up; if there was any oil under there, why didn't they go to it?

Mr. DAILEY. As one of my friends in Houston said, this was one

of the rarest things that had ever happened where an oil company breaks up their own block of acreage by letting a leasing after a discovery well has come in. I don't know why. Maybe it was just a mistake.

The VICE CHAIRMAN. The committee will stand adjourned until 2:30.

(Whereupon, at 12:25 p. m., the committee recessed until 2:30 p. m. of the same day.)

AFTERNOON SESSION

The committee resumed at 2:35 p. m. on the expiration of the recess.

Acting Chairman REECE. The committee will come to order. I believe you were questioning the witness, Mr. Cox.

Mr. Cox. Yes.

Mr. Dailey, did you observe any other experiences of small producers in Texas under the proration laws which would enable you to express an opinion as to whether, generally speaking, those laws create certain difficulties for small producers which didn't exist before the laws?

Mr. DAILEY. Well, of course, I personally haven't had any other experience, and what I would say would be hearsay evidence. I have heard many complaints. Of course, that situation in the oil business is old where everyone producing oil says, "You should produce regularly, but not me." There is no general feeling as a matter of human nature, and when you go to one of these State proration meetings in Austin you don't hear much talk about the optimum production. You hear talk that they are getting the optimum hard deal and the other fellow is getting the optimum good deal. But as a matter of fact, of course, in any business like the oil business there are no holds barred and the fellow that can't take care of himself is going to get in a squeeze play.

Now, as a matter of fact, if by tactics one way or another, big operating interests in the field with large capital can delay a small operator until the allowable is cut, he places the small operator at a terrible disadvantage. Now, this is the case here. For instance, the operators in the Old Ocean oil field were taking out for several years from 350 to 400 barrels a day. Now this allowable has been cut. The last act I saw—I have been away from Texas since April—it was cut to 200 barrels a day. That means these operators in this field would have a great advantage over me. They finance the cost of their well with a very big allowance. Now, they have delayed me, and if I am going to take the same allowable when I drill, it is going to take me longer to pay out my well. I think in the small operating interest, if there are any ways that they can harass him, they do it. It is by one means or another, if it is possible to do it.

This happens to be the tactics employed in this particular field, and, of course, you go to these State-wide proration meetings, you hear people get up and grumble openly in the meeting; they talk to you privately. What is the basis for that I am not sure, but as a general impression and as an opinion I would say that this change that has come in the oil business from a basis of capture to an investment basis, of course, is difficult for a lot of operators to understand; but when you don't take out oil rapidly it places the small operator at a distinct

disadvantage with the bigger one, because the small operator, while his small property is intrinsically just as valuable, he hasn't access to financing that the big operator has, and the basis for him financing his well to the best advantage is in the early stages of the development of the field, when the allowable is bigger than it is later. I don't know whether that answers your question. That is one angle. If on an investment basis, for example, I make a deal, we will say, for the financing of the development of this property of my family and myself, the question of the rate of return on the drilling cost is a factor. Personally if they would say, "Take out \$200,000 a year," well, I wouldn't know what to do with \$200,000 a year. Frankly, I would live in a style I am quite unaccustomed to, but that has been one of the points that has been raised by people that I have talked to. They say, "By the time you ever get that permit they are going to have that allowable squeezed down so low, how long is it going to take to get our money back?" Of course, drilling on proved land is about the finest investment there is, I don't care how small you squeeze the allowable down.

I don't know anything like it, but, of course, the small operator is always talking to you, "I want to get my money back." That is one factor. Now, of course, another method is they will tie a man up through legal technicalities to cloud his title and harass him, and most of the time he doesn't own it in fee; he has a lease; then, for instance, they will go and tap lease him. That is supposed to be very bad in oil companies, big companies. Oh, that is terrible. But they do it.

Then the man as a leaseholder has lost his property. That is a squeeze play. Or they may bring out one of the vacancy rackets, so prevalent in Texas, which is one of the most outrageous things on the statute books of any State. You might have a vacancy. Shall I explain what a vacancy is?

Mr. Cox. I think you had better explain what a vacancy is.

Mr. DAILEY. They passed a law—I haven't read this law and I may be in detail incorrect, but the substance of it is this: When Texas came into the Union Texas owned a great deal of land which they have sold to people who may have had it for 100 years as a good-faith purchaser, and when oil is discovered some one of these vacancy hunters goes around with a surveying crew and locates a vacancy and brings a suit. Well, of course, it is supposed they are getting back for the State land that the man didn't own in good faith.

As a matter of fact what the State gets out of it isn't a drop in the bucket; the vacancy fellow—and it is a racket, and it is a disgrace to have that sort of thing. Now, that is another thing, even if he wins. And they tried to change that law. It was up for discussion when I left Texas. I haven't been there since April. Whether they changed it or not—the newspapers were full of it. Of course the big interests of these oil companies control the source of supply of capital. No good operator ever sells a piece of oil-producing property, if it isn't for reasons that make it necessary for him to sell it, because the history of it has been that on an investment basis anybody usually makes a mistake if he ever turns loose of a piece of oil-producing property, but the small operators have to do it; they get overextended, and they are just as good a credit risk, but that is a very difficult thing and a small operator, to protect his equity, has to act fast because his lease will run out.

Mr. BERQUIST. Mr. Dailey, has the title to your property ever been attacked? Has that subject been up?

Mr. DAILEY. In this permit hearing on the 9th of June these operators introduced some evidence which they claimed threw a cloud on the title. They admitted it was an undivided interest. They said that in 1874 there was some evidence that we really didn't own the property. Well, my attorney told me that it was just applesauce, because they must have thought it was pretty good or they wouldn't have offered to go in partnership with me.

And as a matter of fact, this big 4,000-acre lumber company called the Bernard River Land & Development Co.—we bought it from them; my grandfather for some reason or other bought it from them 20 years ago, and that big holding constitutes a big part of the proven area of the Old Ocean oil field, and the Sun Co.'s holdings; I haven't heard that title questioned. They said there was something doubtful about the south half of the Breen survey.

Well, there are 600 leases in the Breen survey, but I don't think—my legal advice is our title is airtight. That was just to cast the usual browbeating tactics that would scare some poor fellow to death and if he was a small operator and leaseholder, just to make him do business on their terms or they take everything he had away from him, if possible.

Mr. Cox. Have you considered selling your 20-acre tract?

Mr. DAILEY. Yes; for 2 years—you know this is the only piece of oil land I guess I am ever going to have and I haven't thought about much of anything else but to try to get something out of it. I considered, of course, first, that we could make a deal with these people to drill it, and I didn't care much for their proposition and I began going around and trying to develop other things.

Mr. Cox. What people were those?

Mr. DAILEY. I saw Harrison-Abercrombie. For example, before I went down to Houston we had this property. It wasn't leased and we had a letter from one of the operators that when it was properly proven they would like to have it. I said, "All right. On what terms?" He said it appeared to have at least four sands; that is, at least four oil fields to it. So then they came back and made this proposition and I was in Canada and I thought, "Well, it has got four fields; I thought they were going to say they were going to drill about eight wells on it." They came back and said if we would pool it they were going to give me a royalty on half of the oil. Well, there is where your pool comes in. That meant they were going to give us a sixteenth royalty. Well, we had 16/16 of it and they were going to give me $\frac{1}{16}$ out of, we will say, one of these sands. Now, it is known, of course, there are more than four producers in this field now. You might say they would offer to give me $\frac{1}{80}$ of my own oil and plus \$50 an acre in cash and an oil payment of \$75 an acre out of my own. They were going to do that. It would mean that outside of the oil in that horizon they could put wells at different depths around and get oil from under the tract in all but one sand. Now, that started the thing off and I went through this situation in Houston. Of course everybody that I talked to admitted that it was proven—yes; it was fine. Then something would happen the next time we would begin to talk about it. Somebody said, "Oh,

they are just working the old run-around, the old squeeze play." I couldn't even get a bid. This was long before I applied for this permit. I wasn't always going to see some ghost come up and want to drill it and I thought I would drill it myself.

I had some funny experience when I went up to New York to talk to some of my friends. Then we got tied up in this drilling of the property. Of course these people put up this—I don't mind if we can't get together on terms with them; that is quite all right. They certainly don't have to buy me out. To drill it is good enough for me, but I would be perfectly willing to deal with them on the general basis that similar deals have been worked out, and practically submit it to arbitration. I would sell it, of course. Now, of course, there are any number of different formulas, it just depends. I will give you an instance. The Hastings field that is operated by the Stanolind and the Humble Co. in the same county, that is one of the great oil fields of the Gulf coast. It has a great sand body of a thousand feet in some places. Of course that would vary in different parts of the field. There was one tract—a 10-acre lease—that some small operator got hold of, and the story as I have it is that they paid a million dollars cash, Federal taxes paid. When you stop to think about it, he estimated that there was about 400,000 barrels under his 10 acres, and it wasn't too much of a price, but there was another tract in the Hastings field, an operator got a 10-acre lease and for some reason or other he didn't come to terms with the Humble and Stanolind. He said there were two sands and he would rather have the oil than sell it, so he drilled two wells on that 10-acre tract. It was a very valuable holding. Then they drilled twin wells all over the field. According to the testimony of the operators there isn't 1,000 feet of sand, there is 2,000 feet. I never heard of a big sand body like that before in Texas, but that is their testimony, and from the wells and the testimony of this letter there are at least four. That means at least four wells.

Now, it is very difficult to sell to advantage a piece of property like that, because the income, capitalized, means a very nice capital asset. It is difficult to sell it. I am practically forced to reduce it.

Mr. SHAUGHNESSY. Mr. Dailey, may I ask one question? If you did get a drilling permit for this property, wouldn't it increase the value of your land if you wanted to sell it?

Mr. DAILEY. Oh, tremendously. It would increase the value of it in my making a deal, either with an operator or making financial arrangements, because one of the big bugaboos has been all this, "Oh, they are going to tie you up on the drilling permit forever." Well, they tied me up for a long time. I haven't been in Texas but this was a letter written to me by one of my relatives. They sent an emissary around to him and in talking to him about this pooling business they said, "I guess they dismissed the possibility of my getting a permit in the court of appeals."¹ They didn't mention it, and they said, "If you get a permit, we will tie you up in injunction proceedings."

Acting Chairman REECE. Do you have further questions?

Mr. Cox. No.

¹ See Mr. Cox's statement on October 23, 1939, relative to the issuance of Mr. Dailey's drilling permit. A copy of the decision of the Texas court of appeals, in issuing a mandatory injunction to the Texas Railroad Commission, was introduced October 25, 1939, marked "Exhibit No. 1328" and is included in Hearings, Part 17.

Acting Chairman REECE. Mr. Noble, the Under Secretary of the Department of Commerce, is with us today. If you have any questions that you would like to ask, we would be very glad to have you do so.

Mr. NOBLE. I have no questions.

Acting Chairman REECE. Any other committee members have questions? We thank you very kindly for coming before us and making your very interesting statement.

(The witness, Mr. Dailey, was excused.)

Acting Chairman REECE. The next witness scheduled is Mr. Harold B. Fell, but I understand due to illness in his family he is unable to be present today and that the general counsel of the Independent Petroleum Association of America will appear in his stead, Mr. Russell Brown.

Mr. Brown, do you solemnly swear the testimony you shall give in this proceeding shall be the truth, the whole truth, and nothing but the truth, so help you God?

Mr. BROWN. I do.

**TESTIMONY OF RUSSELL BROWN, GENERAL COUNSEL, INDEPENDENT PETROLEUM ASSOCIATION OF AMERICA, WASHINGTON, D. C.,
APPEARING ON BEHALF OF HAROLD B. FELL, ARDMORE, OKLA.**

Mr. BROWN. Mr. Chairman, in explanation, Mr. Fell has prepared a statement to be made at this time. Mr. Fell is a producer, and also a vice president of the Independent Petroleum Association of America, which is a group of producers. He was here in attendance on the committee on Monday, but he was called away on account of the illness of his wife, and had to go to Rochester, Minn., and asked that I present the statement for him.

The statement is printed and is in your hands, and is somewhat lengthy. I don't think it would be necessary for me to read the entire statement. I think perhaps I can briefly summarize the substance of it.

Acting Chairman REECE. We will be very glad to have you follow whatever procedure you think might be best.

(Mr. Harold B. Fell's printed statement was marked "Exhibit No. 1179" and is included in the appendix on p. 7552.)

PROBLEMS AND SUGGESTIONS OF SMALLER, NONINTEGRATED PRODUCERS

Mr. BROWN. This statement, as I say, is presented by a group. It differs somewhat from some of the other statements because this represents one association's point of view, the collective point of view of a bunch of the smaller producers in the industry, a group that has been working on the various problems of the producer, and this statement attempts to bring to the committee the experience of that group over a period of years in meeting the problems of production, and deals entirely with production. Practically all of the members are exclusively producers, and for that reason the problems presented in this statement are the experiences of the producers, not only in the production of petroleum but in their efforts to meet the various problems that confronted them from time to time, not only in the competitive situation, but also in their efforts to find a legal means of

continuing the production business in the face of the various problems that are peculiar to production.

The migratory character of petroleum was one of the first problems that confronted them; which developed what is known in law as the rule of capture, which simply means that you have got to reduce the oil to possession before it is yours. That has necessitated an unusual situation, and a very different situation to that which applies to other minerals, such as coal or iron, and so forth. That developed what later on in the production end of the industry was known as offset requirements; that is, if a man gets a lease on your property and your property joins another man's and another person has a well on that, he is required to drill a well there to protect your interest, because the oil might move backward and forward. That brought on in later days, when we found more oil, the problem of getting more flush production than there was any requirement for.

Not only that, but to modify that law required a lot of laws that later became what are now embodied in the conservation laws. The proration laws were not a part of these conservation laws. There seems to be some confusion in putting proration as a conservation law. The proration laws are simply the outgrowth of the conservation laws that have for their purpose assuring to each of the producers in the territory their right to explore and obtain their part of the oil. So as this has developed in the various producing States, the producers have taken the lead in advocating the various forms of conservation laws. These laws—most of them—are imperfect today. They are a gradual development of thinking as our information develops on production. So what yesterday seemed to have been a very satisfactory law, we find after a process of development we get new information which has occasioned the changing of many of these laws. They are confronted constantly with the problem of not only getting the information on which they base what they think are the best laws, but then selling the idea to the various producers who are likewise engaged. Then they are confronted with the problem of getting the State bodies that are not altogether oil-minded to understand the necessity of this type of law, and finally getting it passed. That has been a gradual process of development through the various oil-producing States.

Later on, after most of the States had adopted some form of conservation law, we found that their ability to enforce these laws was somewhat interfered with, because under our interstate-commerce laws the transportation systems are required to take commodities presented to them, and a man might drill into a field in the State of Texas, for example, and produce more than the State allowed. The State laws would probably not permit that to move into intrastate commerce, but there was no power to stop it from moving in interstate commerce. So in order to meet that situation this group that presents this proposed what is now known as the Connally "hot oil" law which is simply a law offered in aid of the States that have conservation laws and applies only in those States where they do have conservation laws. It provides that commodities produced in violation of those laws shall not enter into interstate commerce. That was an outgrowth of the development of the necessity as the producers saw it from time to time.

Following that there seemed one of the principal problems was a matter of understanding between the States. We first had difficulty between the pools in a State as to their relative rights in a total amount of production that might be had from that State, and then there was misunderstanding between States. This group didn't develop it but there was developed a law which is commonly known as the interstate compact in oil-producing States, which is simply a compact between the oil-producing States, approved by Congress, authorizing them to study and discuss the laws pertaining to the conservation of the natural resources of petroleum. That has been in effect for some time and it is now joined in by some six States, I believe.

Part of that compact is that the States themselves shall pass such conservation laws as will enable their regulatory bodies to properly enforce and interpret the conservation laws of the States. That is a brief history of the regulatory laws that have been passed by the various States as contained in this statement.

A number of problems grew out of the production activities. One of the first was that pipe lines that were the principal outlet for the production came in and were not common carriers in many of the States. Now in practically all of the States the pipe lines are common carriers required by law, which meant if they came in they should take out everyone's oil, if they take any they should take the oil tendered to them. Later an additional trouble grew out of that in that since the pipe-line people were ordinarily the purchasers of oil, we found that they often purchased oil that was desirable maybe from their own leases or maybe from some leases with which they happened to have a favorable relation, so in order to meet that problem there was passed in practically all of the States the common-purchaser law, which is a law requiring them to purchase equitably from the various pools leased within the State, which is an effort to improve and insure to the individual producers the same rights. Most of these independent producers have no market except through the pipe-line purchasers who purchase their oil at the field. You will understand from that the necessity of having these different types of laws passed.

There are still imperfections that we have no answer for yet. It is the thought of most of the producers that the problems if possible should be met within the industry. Where they can't get the rights that they feel they should have, either because the other companies are larger or because they are unwilling to recognize them, they have felt willing to go to the State legislatures to get such corrective measures as might serve their purpose.

One of the problems that confronted the domestic producer was the feeling with many of them that the larger companies also had properties in foreign countries that we felt and later determined could be produced and brought into our market more cheaply, and, since they were our principal purchasers in this country, that whenever they wanted to change their price here they could raise the amount of imports that they would bring in and so flood our market as to reduce the price. In order to avoid that, they came to Congress in an effort to get a restriction on imports, and they have to some degree restricted that until today the import problem is not so serious.

Other problems confront us; one which has been mentioned is the feeling among some that probably the earnings from one branch were used to give them an advantage against those who were engaged exclusively in some other branch. We have tried to meet that. So far we haven't a satisfactory solution, but we bring these things to you so you can see how far we have gone. This has been studied by committees from our group for a great length of time, committees who are actively in the production and familiar with the various problems. They do not feel at this time that divorcement of the pipe lines from the other divisions is the answer. That is based largely on the fact that we don't transport ourselves; we sell at the field.

We are dependent on that for our market. We are not sure where we would go for our market under divorced conditions. We rather have suggested that each division of the industry should be required by some means—standing on its own feet, production should be—the receipts from production should go back to production and not be used in other divisions. One or two of the remedies we have suggested in trying out on that would be an actual separate income-tax return that would in fact—I don't know how effective the present one is, and we don't ourselves—would in fact require separate return and a separate tax on the divisions, marketing, transportation, production, and so forth. We have also suggested to the Securities and Exchange Commission the advisability of requiring in their reports that companies reporting to them should separately report their income and profit-and-loss situation as to each division of the industry, so that that would be readily ascertainable and might have the effect of discouraging any temptation to use profits in one as against losses in another, which might give them an unfair competitive situation.

We present those as problems and suggestions. We have one other suggestion that we would like your consideration of, and that is we feel there are many of the problems in our industry that could be met if there were some agency of government that could approve agreements worked out between those within the industry, could check those agreements for the purpose of ascertaining whether or not there was anything in them that might violate the antitrust law, and, if there were not, then permit operation under those agreements.

So that we feel we might set out here some of the things we feel might be improved by that.

No. 1. Effective utilization of natural-reservoir energy in all new fields.

No. 2. Prevention of uneconomic above-ground stocks of petroleum and products.

No. 3. Assurance of permanent, effective balance of supply with demand.

No. 4. Establishment and maintenance of equitable proration, within and between oil pools.

No. 5. Elimination of unnecessary and unprofitable drilling.

No. 6. Protection of the "stripper" wells.

No. 7. Establishment of a proper basis for determining price.

No. 8. Elimination of the subsidizing of losses in one branch of an integrated company with the profits from another.

No. 9. Establishment of rules making possible sound and ethical practices in the marketing division of the industry.

No. 10. Assurance to small refiner of access to supply of raw material as well as access to market.

I think, Mr. Chairman, that summarizes what we have attempted to set out in more detail in this statement, and I think from our point of view we recognize this as an effort to better understand the problems confronting business, and we thought it was our duty to bring you something of the history of our problems as we have met them.

Acting Chairman REESE. The committee is very glad to have you give it this summary of Mr. Fell's statement, and I authorize it to go into the record, and in doing so I assume, Mr. Cox, that you had looked it over and that it is agreeable with you? ¹

Mr. Cox. Well, perhaps I had better say this off the record. (Discussion off the record.)

Acting Chairman REESE. I understand the Department of Justice takes no responsibility for the statements of the witnesses appearing before the committee in the study, but I understand that in the nature of this study, being as it is, that these statements were to be submitted to the Department so that it might have opportunity to go over them, and the only purpose I had in propounding the suggestion was to see if you were advised and had expected Mr. Fell to make this statement had he been here in person.

Mr. Cox. That is quite right, and I have seen the statement. We have all seen the statement.

Acting Chairman REESE. And it is the statement Mr. Fell expected to make had he appeared here in person?

Mr. Cox. So I understand.

Acting Chairman REESE. If that is so, then I should think the statement should go into the record as indicated, and we will be very glad to have it so printed.

Now, Mr. Cox, do you wish to ask Mr. Brown some questions?

Mr. Cox. I think when I do you will see why I wouldn't approve of all the things Mr. Brown said.

Mr. Brown, you are familiar with this statement, aren't you?

Mr. BROWN. Yes.

PROPOSAL FOR INDUSTRY AGREEMENTS NOW OUTLAWED UNDER PRESENT INTERPRETATION OF ANTITRUST LAWS

Mr. Cox. I would like to call your attention to a statement on page 11 which reads as follows:

The current interpretation of the antitrust laws is now handicapping the independent group in their efforts to protect themselves from the large integrated companies.

Will you just amplify that a little bit for the benefit of the committee?

Mr. BROWN. I would be glad to. To begin with, Mr. Cox, we are in full sympathy with the antitrust laws. As a matter of fact, we think that is what enabled us to get into the business and we rely on that to enable us to stay in the business. We are in full sympathy with any effort to enforce that. It has come to our understanding

¹ Introduced supra, p. 7306.

that interpretations have been made that the antitrust laws forbade any agreement, whether good or bad, within any interindustry agreement, and we can't agree with that.

That has so permeated the industry that there is a hesitancy and a fear among a lot of our fellows to get together and do what we think—and I think you will think, if you could see it—as being a constructive thing for the industry and for the country as a whole. In other words, we have a feeling that the interpretation that some are placing on it prevents the lambs from organizing against the wolves, if you see what I mean. Maybe that clarifies it.

Mr. Cox. I think I begin to see what you mean. May I ask this question: Do you propose to interpret the antitrust laws so that the independents can agree among themselves and combine to protect themselves, although larger companies cannot?

Mr. Brown. No; I don't ask that in here, if you read the statement. The statement says that if we could make an agreement, if we had some group—this is based, as you understand, on my plea for agreements within the industry—if we had some group that we could submit; for instance, if we could come to you and say, "We want to protect ourselves—the refiners are running too much gasoline. It is breaking down the entire petroleum structure, economic structure. We feel that puts the small refiner out of business and second, this reacts back to the small producer." Now they wouldn't do that. If we should go to them and prepare a normal agreement of operation that would be satisfactory, they couldn't face the public and refuse to sign that agreement and go along with it, but we want an agreement that would be in conformity with the antitrust law.

I am not asking for the independent anything that the others wouldn't have.

Mr. Cox. Then, as I understand it, your proposal is that machinery be worked out to permit industry agreements, not simply combinations on the part of the independents, but agreements between independents and the majors, if necessary?

Mr. Brown. Whatever it may be, on things where it would not conflict. That is purely a matter of giving confidence and removing fear.

Mr. Cox. And it is your suggestion that those agreements should be subject to some supervision by a public agency?

Mr. Brown. I so state in there.

Mr. Cox. That was the way I understood you.

Mr. Brown. That would be highly desirable. Of course, it wouldn't be effective unless it were; we couldn't have any confidence in it if we went out and made agreements among ourselves.

Mr. Cox. Is it your idea, then, assuming just for the purposes of this discussion, without anything more, that it is now illegal for people in an industry to agree upon what you call a proper basis for determining price? You think the antitrust laws should be modified so as to permit that kind of an agreement, subject to review by some public authority?

Mr. Brown. I have never asked for the antitrust laws to be modified; I don't in this.

Mr. Cox. I am suggesting to you that you assume for the moment that legally the antitrust laws, as they now stand, do not allow in-

dustry to agree upon a basis for a price. Suppose that is true; then would you want the law changed?

Mr. BROWN. No; I wouldn't want the laws changed.

Mr. COX. Perhaps I am not making myself clear. I will try it in this way. You suggest that agreements—some machinery should be provided for making agreements which will establish a proper basis for determining price. Will you tell me and the committee what is the difference between a price-fixing agreement and an agreement that determines the proper basis for determining prices?

Mr. BROWN. I think I can do that, to my mind; maybe I have the wrong theory. We have a feeling that the price for crude petroleum—we have no idea just how it is determined; as far as I can tell, there is none in our group can tell you to save their life how the price that should be paid for crude is determined. We have a feeling that a lot of those who purchase our crude use this sort of process. They go into a competitive market and maybe wastefully spend a lot of money on marketing conditions, that we think are not justified in many instances. They enter into price wars. They don't care what they get for a gallon of gasoline. There are a lot of our people that feel that way. Now, they may be wrong, but I am telling you that is the feeling that prompted this.

We have a feeling that many of them don't care what they get for a gallon of gasoline, because what they do is take off the cost of marketing, the cost of transportation, the cost of refining, and they give us for production whatever is left.

Now, we think that is the wrong basis. We think the price of crude ought to be determined, beginning and taking into consideration a reasonable cost basis for the production of crude, and then add your various costs to that until it reaches the gasoline sold in the station. That is purely a matter of base, and not a matter of price-fixing. That is what we are talking about.

Mr. COX. Would you want a formula agreed upon of some kind to prevent the price of crude going below certain limits? Is that an accurate statement?

Mr. BROWN. No; that wouldn't be quite accurate. I think the price of crude will always fluctuate somewhat, but we don't want someone to be able to overnight strike it down. If you understand our position, one of the greatest fears in the producer is the uncertainty; until we have eliminated a lot of that uncertainty through these past years, through these various efforts we have made, we are continuing that same effort.

For years the fellow who produced crude, when he found a field, had no means of determining what the barrel of oil was worth. There was no basis for it. All he knew was that it could only be worth to him what he could sell it for, and that night, when he brought the field in, it might be worth \$1 a barrel; the next morning when he went to his lease he would probably find a notice saying he would get 10 cents for a barrel. Now that prevents him from going to the banker; the banker won't give him a reasonable consideration on a loan, because he has no basis of telling what a barrel of crude is worth. Now we want to eliminate the possibility of a few people saying that crude yesterday was worth \$1, but today it is only worth 40 cents, and completely wiping us out of business. We want to be able to protect ourselves against that.

Mr. Cox. I think I see the problem. I wonder if you could be a little more specific and indicate to the committee just how an agreement of that kind would operate.

Mr. BROWN. That would be a matter of suggestion. It is a problem on which we would like to work and it would take a long time to work that out. I haven't any detail worked out for it. It is only one of the things we would like to try to work out.

Mr. Cox. You think if an agreement of that kind were possible it would result in an agreement as to the basis of purchasing, which would prevent the violent fluctuations in price, although you said a moment ago it wouldn't prevent all fluctuations?

Mr. BROWN. I think there could be something worked out. Frankly, I don't know any detail as yet.

Mr. Cox. Would it be fair to say that the effect of that agreement over a long period of time would be to establish a kind of minimum price?

Mr. BROWN. I don't think so because conditions vary. I would say this, the effect of it would be for over a long period of time they couldn't maintain a price below the cost of production. It might have that effect. That would certainly be one of the purposes of it; yes, if that is what you mean.

Mr. Cox. Now considering paragraph 2, the prevention of uneconomic above-ground stocks of petroleum and products. That really would have to be an agreement for a limitation of production, wouldn't it, applied to manufactured goods?

Mr. BROWN. Of manufacturing, yes. I think it would. I think it would involve a restriction on excessive refinery operations.

Mr. Cox. Well, that is a more pleasant way of saying it.

Mr. BROWN. It is my way of saying it.

Mr. Cox. It is a restriction of production and you think assuming, again, that if that sort of thing is illegal now, the law should be changed to prevent an agreement?

Mr. BROWN. I haven't so stated.

Mr. Cox. You haven't suggested the law be changed but if that kind of thing is illegal now, I am just asking you for the sake of the discussion to make that assumption, then you think it might be desirable to change the law?

Mr. BROWN. I don't think so. I don't think the change in the law—the object sought would be worth changing the law.

Mr. Cox. You would give that up if it is illegal now?

Mr. BROWN. Maybe a lot of these things we would find when we had this group that we couldn't do, but then we would quit.

Mr. Cox. Would it be fair to say to you, then, so far as any one of these 10 things you have listed here on this last page, is at the present time inconsistent with the proper interpretation of the anti-trust laws, as that interpretation is made by the courts, your organization doesn't wish to press for any changes in the law which would permit it?

Mr. BROWN. Not where the courts have so said; no. There are a lot of things that I think are proper, and I think you think are proper, and I think the entire Department thinks are proper; but our folks are afraid to discuss them because they don't know, they have no means of knowing, whether they are proper or whether you

think they are proper. If you could say, if we had some means so the Department could say, "Well, that is a matter we think is proper," then we could go ahead with freedom and with confidence and lack of fear. That is what we want.

Mr. Cox. How many of your problems are intrastate in character so that they are matters that don't really concern the Federal Government?

Mr. BROWN. Quite a few of them. There again it is a question of just where the line is between intrastate and interstate. I don't think we know it yet. I know I don't.

Mr. Cox. I take it from your testimony, then, that you do not think, quite apart from any legal questions, that price fixing or agreements to restrict or curtail demand are economically desirable.

Mr. BROWN. I don't think price fixing is desirable.

Mr. Cox. But you do think perhaps agreements to restrict production are desirable?

Mr. BROWN. Yes; I think, in many instances where we have no agreement on that, we waste an awful lot of oil, and by proper agreements we can avoid that waste.

Mr. Cox. When you speak of waste, do you include in that statement the refining operations? Do you think there is waste involved there by excessive production?

Mr. BROWN. I think the excessive operation of the refinery often results in wastes; yes.

Mr. Cox. In what sense does that waste take place?

Mr. BROWN. In two or three senses. One is that excess stocks on hand are always subject to some waste. That is the primary thing. The second is, excess stocks bring about a temptation to dispose of them. An abundance creates a desire to sell for something. When they start selling they begin to cut until they sell it for whatever they can get. Then that comes back in a reduction in the price of crude until it reaches the point where it affects a large part of our wells, which, as you understand, are small wells, with very small production; and when the price they get for the crude gets so low, they have to abandon those wells, and we lose that part of the oil. That is where the second waste comes in.

Mr. Cox. Would you say one difficulty so far as you people are concerned today is the fact that the market for the purchase of crude is excessively competitive?

Mr. BROWN. No; I don't think it is excessively competitive. I wouldn't understand it that way.

Mr. Cox. Well, would you agree it is a competitive market?

Mr. BROWN. We don't know. It is handed to us. We have to take what we can get, and we think it is competitive. It has all the appearances of being, and I know of no one who would say it is not. What I mean by that is, we don't enter into the determination of the price of our own product.

Mr. Cox. That is posted by the purchaser in the field, and your people pay it?

Mr. BROWN. We take it.

Mr. Cox. And you feel there is no real bargain involved in that sense?

Mr. BROWN. No. We think, as these laws develop and as conditions

develop, it probably should become more of a matter of bargaining and an understanding between us, because we think the man who produces a product ought to have some right to sit down with the man he is going to sell it to and say: "What is this worth, and on what basis can I sell it to you, so I will know whether to develop any more or not?"

Mr. Cox. You said in your testimony, as I understood it, that you thought it might be a good idea to prevent the integrated company from subsidizing one branch of their activity with profits from another; is that correct?

Mr. BROWN. Yes; if I had a remedy for that I would like to suggest it. I have suggested a few of the things we are thinking of, but I don't know how it ought to be done.

Mr. Cox. Are you convinced that sort of thing is done?

Mr. BROWN. I think it is; yes. I am pretty well convinced that it is.

Mr. Cox. And that, in turn, affects the price which you people receive for your product.

Mr. BROWN. I think it affects the whole industry when it is done. It creates an incorrect picture of the welfare of one branch.

Mr. Cox. What branch particularly do you think profits are taken from?

Mr. BROWN. I think it is primarily from the pipe-line branch.

Mr. Cox. The transportation branch of the industry?

Mr. BROWN. That is right.

Mr. Cox. Mr. Berquist calls my attention to paragraph 10, on the last page of your statement: "Assurance to small refiner of access to supply of raw material as well as access to market." Are we to take it from that statement that it is your opinion now that the small refiner does not have access to a supply of raw materials?

Mr. BROWN. I don't know of a place where he doesn't have free access to it, but I think he ought to know that he is always going to have it.

Mr. Cox. It is a question of certainty, then.

Mr. BROWN. I think that is it.

Mr. Cox. What about the access to the market?

Mr. BROWN. That is a matter that I am somewhat in doubt about and don't know enough about to be of much value to you.

Mr. Cox. Do you have any idea as to specific steps that might be taken to assure him of access to supply and market?

Mr. BROWN. Yes; as an illustration I think probably something along the line which was finally worked out in the last days of the code could be worked out and still be legal. Under those operations, every refiner—and I don't think we froze any operations under that—was assured, he had the confidence that he could get a supply of raw material and that his markets were not cut off. Now that was very helpful, and I think probably one of the most effective things the Government has ever done in the oil industry, and it was in the last part of the final working out of our refinery situation. I think something along that line could be accomplished yet if we had someone we could sit down with and be sure we were doing it legally and not endangering our future.

Mr. Cox. Would it be unfair to suggest to you that this scheme for agreements appears on its face to be very much like the N. R. A.? Is that the sort of thing you have in mind?

Mr. BROWN. No; I don't think I have quite that in mind. I think I have the specific things from time to time, whatever they may be, while the N. R. A. was an over-all organization. This wouldn't involve administrative activity on the part of the Government, it wouldn't necessitate it, because the minute you saw when the contract was presented to you and it had on its face elements of illegality, then the thing is abandoned and no further effort made to pursue it. But if a group of folks found a means of operation—for instance, a lot of small refineries have been built, we will say, near a source of supply, but probably not near a retail market sufficient to take care of it—for a long period of time many of the larger companies that didn't have a refinery in that area could take part of that off their hands in a perfectly economic manner. They wouldn't do it today, because they say they are afraid of the interpretation of the antitrust laws. We don't know whether that is true; we don't know whether the big companies are hiding behind that as a bug-a-boo and doing that just to keep from doing what we think is a constructive thing, or whether they would in fact be violating the law. If we had this sort of thing, we could come to you and you could say, "Why this is perfectly legal"; and when they say to us, "We can't do that because it is illegal," we could show them it is not.

Mr. Cox. Would you be willing to have the execution of such agreements carefully supervised by public officers to make sure that the administration of the agreements conformed to the agreements as they appeared on paper?

Mr. BROWN. Frankly, the detail hasn't been completed in my mind, but I think that there would necessarily be some body that approved it to whom we could go and again present to them some activity that was being pursued allegedly under that agreement and see if that was a violation; and then if so, of course the antitrust laws would become operative and stop it.

Mr. Cox. Could that body come to you and say, "We would like to see what you are doing under this paper agreement that we saw 3 months ago"?

Mr. BROWN. Well, I think you always have that right. They could do that just as you do now.

Mr. Cox. We only get what you want to give us.

Mr. BROWN. I don't think you have ever had any trouble getting it.

Mr. Cox. One other question I want to ask you. You said something in your statement which led me to believe that it was your opinion that from time to time the major companies accumulate stocks of manufactured products with a view to the effect that that accumulation may have upon the market. Is that correct?

Mr. BROWN. I said that was the opinion in many of the fellows' minds, and if we had some means of avoiding that, then that would remove that fear from their minds and they could go ahead.

Mr. Cox. Do you have any opinion personally as to whether that is done?

Mr. BROWN. Well, I am in this position on that: They know they are running a lot of excess products, and anybody can tell their excess, they don't have to ask it, I mean anyone that is at all familiar with the industry. Why they are running them is purely a ground for speculation. It is perfectly natural if you are in a business that you

would be afraid—it is like a small country wonders why a bigger country is moving a big army in against their line. It arouses speculation from that standpoint.

Mr. Cox. I think that is all I have.

DIFFERENCE BETWEEN VIEWPOINTS OF LARGE, INTEGRATED COMPANIES AND SMALLER INDEPENDENTS AS TO AMOUNT OF GOVERNMENT INTERVENTION NECESSARY IN BUSINESS

Mr. HENDERSON. Mr. Brown, did you follow Mr. Pew's testimony? ¹

Mr. BROWN. Somewhat, yes; practically all of it.

Mr. HENDERSON. The thing that strikes me to develop a little further along the line of questioning Mr. Cox has taken is that Mr. Pew was very strong in his statements that there is no condition in the industry which require any further intervention of government. I presume from that that he was representing the point of view of what you would call the large producers, the majors. Here is your group, presumably of much smaller stature as individual businesses, which in its 10 propositions very definitely drives toward a much further penetration on the part of government as an umpire, referee, or intervener of some kind. What I would like to know is whether that represents a personal difference, you might say, between Mr. Pew and Mr. Fell or whether it is pretty generally the cleavage that runs between the larger producers and the people in your organization.

Mr. BROWN. I would say that is probably the unconscious reaction from difference of position. In other words, size gives you an element of confidence that you can take care of yourself and therefore you don't need or require any intervention, but if placed in the same pen with a group of large folks and some smaller ones, even though they don't believe the larger ones intend to step on them or intend to lay down on them, they realize that thing might happen unless there is some plan of insuring protection. I think that is probably the difference, a matter of size largely.

Mr. HENDERSON. The tenor of Mr. Pew's testimony was that there are no conditions that really require it so far as the entire industry is concerned. In this listing which Mr. Fell has prepared and you have so ably presented for him, there is more than a suggestion that there are a number of conditions which militate against the independent and the individual. Am I right in that feeling?

Mr. BROWN. I think you are right in this, Mr. Henderson, that our group feel very intensely that eternal vigilance is all that keeps them in existence and this is one of the elements of doing it.

Mr. HENDERSON. Do you feel that there are times in which the small refinery is denied access to raw material and also access to markets?

Mr. BROWN. I wouldn't be in position to honestly tell you there are times he has been deprived of raw material, because I don't recall it, but I can see where that might happen very easily, and I could understand why he might fear that; but as to access to markets, yes; I see that quite often. I think that actually exists and has existed for, oh, 2 years at least.

Mr. HENDERSON. You think, then, there also is unsound and unethical practice in the marketing end of the business?

¹ Supra, p. 7163 et seq.

Mr. BROWN. Unquestionably.

Mr. HENDERSON. And you think also that some of the integrated companies subsidize some of their losses with profits derived from pipe-line ownership?

Mr. BROWN. Yes; I don't think there is any question about it.

Mr. HENDERSON. And then you think, too, as I gather, the smaller man wants protection against this mysterious force that fixes the price which he has to pay. Do you think—let me ask you frankly, because it is highly important—that there is conscious collective fixing of price for crude?

Mr. BROWN. Do you mean for the crude product?

Mr. HENDERSON. Yes.

Mr. BROWN. I doubt very much if there is. I don't think it is necessary. I think the set-up—

Mr. HENDERSON (interposing). I mean for the crude.

Mr. BROWN. I doubt if there is because I doubt if the necessity exists for it.

Mr. HENDERSON. Why?

Mr. BROWN. The position which they have where there are relatively few who are able to buy a great amount of crude fixes it so that no small purchaser of crude can raise the price of crude; he can lower it, but he couldn't raise it.

Mr. HENDERSON. You know, Mr. Brown, you are in the position of the fellow who after a long period of time found that he had been talking prose all his life. What you are now discussing is oligopolistic competition. You are saying that the small man is not in position to affect the price and therefore the larger groups undoubtedly do. They have an awareness, is that it, of what would happen if they cut each other's prices?

Mr. BROWN. Well, I don't know." As I have stated in here frankly, I don't know how they arrive at this price of crude.

Mr. HENDERSON. When you say "they" do you mean a group?

Mr. BROWN. I mean the fellow that buys one man's crude.

Mr. HENDERSON. Isn't it pretty generally about the same price?

Mr. BROWN. I think so.

Mr. HENDERSON. In a field?

Mr. BROWN. Competitive conditions would force that, I can easily see that, because if one man has your connections and he is giving you a dollar for oil and he suddenly cuts to 70 cents and another man is willing to take it at a dollar, then you just take your connections off and give it to the other man, so competitive conditions would force a rather leveling of that price; I could understand that very easily.

Mr. HENDERSON. I can see where that would work advantageously at times but how does the low price or a change in price get fixed in your opinion?

Mr. BROWN. I don't know.

Mr. HENDERSON. You don't know. Is it price leadership, do you think?

Mr. BROWN. I would like to have that information; I am searching for it.

Mr. HENDERSON. What I am trying to get at is, there has always been a great mystery as to how that particular chalk mark was made which represents a posted price, and you people are dealing

constantly with people who make those chalk marks. I think the committee would be interested in your best explanation of how prices are made.

Mr. Cox. Do you feel there is a large purchaser who purchases more than anyone else who acts as a kind of price leader?

Mr. BROWN. Normally, but that is not necessarily true. Often approximately the same amount will be purchased by some four or five different people.

Mr. Cox. Take the trade journals' prices. Frequently in a field they will only report the crude price posted by one or more of the larger companies, won't they?

Mr. BROWN. That is true as a rule. Sometimes there will be four or five.

Mr. Cox. But frequently there are only one or two.

Mr. BROWN. Yes; and sometimes there are only one or two purchases.

Mr. Cox. And that price is taken as the price of that field?

Mr. BROWN. Yes. I will be perfectly frank with you, Mr. Henderson, if that confuses you as an economist you must understand how it confuses the fellow who sells it, because when he goes to the bank he ought to be able to tell the bank, "Now, I have so many thousand dollars' worth of oil or gas on which I would like to borrow so many dollars," but he can't do it unless he has some basis for that price.

Mr. HENDERSON. This confusion you speak of sometimes undertakes to find resolution about the same way that you have described. You say, "We don't know how this price is fixed. By gum, we want something to prevent them"—using your own language—"from fixing this price to our disadvantage."

Mr. BROWN. That is right.

Mr. HENDERSON. That is confusion worse confounded in my opinion.

Mr. BROWN. We know whom we sell to and we know what they pay us after they pay us and what they pay us today. We don't know whether that is what they are going to pay us tomorrow or not. We had a recent illustration of that when things looked on the face of it, so far as statistics are concerned, and I concern myself somewhat with statistics because of the industry, everything looked fine and I thought that the production of petroleum was going along; I knew there were spots that were bad but I thought things were going along pretty well and I woke up one morning and found on my desk a notice that crude had been cut 20 cents a barrel.

Mr. HENDERSON. A notice from whom?

Mr. BROWN. Well, it was in the papers, in the trade journals.

Mr. HENDERSON. Who cut it?

Mr. BROWN. Some of the purchasers.

Mr. HENDERSON. Some of them or one of them?

Mr. BROWN. One day it was one, the next day it was another, and so on.

Mr. HENDERSON. Was that for different fields?

Mr. BROWN. Yes.

Mr. HENDERSON. Only one in each field?

Mr. BROWN. Oh, no, no. Where they were both purchasing in the same field the cuts came.

Mr. HENDERSON. Was it always the same amount?

Mr. BROWN. Not exactly; no. It varied some. There is a different basis for that—one uses a gravity base and one runs higher than another.

Mr. HENDERSON. Mr. Chairman, I am still confused but suspicious. I assume the witness is also.

Representative WILLIAMS. Does that fluctuation in the price and the market price occur frequently?

Mr. BROWN. It doesn't occur so often as it used to. Formerly the fluctuation up and down was very disturbing. Since 1933 we have had very little of that type of fluctuation and it has been very helpful to us. I think the fear of fluctuation is probably one of the greatest things that the producer has to bother him. I will say frankly that it has improved considerably.

Representative WILLIAMS. When you found that the price had been cut, for instance, 40 cents a barrel overnight, what reason was there for that? What reason was given for it? What explanation is there for that?

Mr. BROWN. On this particular occasion where there was a 20-cent cut that I referred to, there were two companies, one of the companies gave as a reason that they had tried to get the price of refined products up and were unable to do so, and at the time they tried to raise the refined-products price they stated that the price of refined had to go up or the price of crude down, and that was the reason they gave. The other that affected a very large part of our production gave no reason at all until about 6 or 7 days later, at which time they announced a set of reasons which were overproduction and other people selling their crude below the price that they were posting—those were the main reasons; there were other reasons set up.

Mr. HENDERSON. May I return just a moment to the questioning? During the code days, was it generally understood that there would be a uniform basis for fixing the price for crude?

Mr. BROWN. There was quite a group in the industry that went so far even as to try to get the price fixed rather than to have the uncertainties experienced in the past, but that group lost out and were not successful.

Mr. HENDERSON. I am not talking about the actual price fixing, but as I recall during the code the question of "hot oil" was up, and it was pretty generally understood that the major companies had a uniform basis to try to fix a uniform price for crude. Didn't you understand it that way?

Mr. BROWN. I don't think it went quite that far. There was a lot of discussion. At that time, you see, we would bring the marketers, the purchasers of crude, and the producers, and they would all sit down and talk it over together in the presence of the Secretary of the Interior, who was the administrator of the code. At that time the question of realization on a barrel of crude was discussed a lot; and, based on the realization that they were getting, they figured that the price of crude ought to be up so much.

Mr. HENDERSON. How did it get up? It got up, of course.

Mr. BROWN. I don't know how, except that probably the people that were selling gasoline and buying crude became conscious of the fact that there ought to be some harmony between the price of crude and the price of gasoline.

Mr. HENDERSON. Harmony between themselves?

Mr. BROWN. I don't know about between themselves.

Mr. SHAUGHNESSY. Wasn't there a fixed ratio in the code?¹

Mr. BROWN. There was a fixed ratio of status, but it was never operative. It was discussed and I think adopted, but it never operated.

Mr. HENDERSON. The prices did get up?

Mr. BROWN. Oh, yes.

Mr. HENDERSON. And they didn't follow a natural law of supply and demand in that connection, did they?

Mr. BROWN. I don't think you could quite say that, because they were down not in response to a natural law, and they simply came back to more of a level than the natural law.

Mr. HENDERSON. That sounds to me like a one-way pocket for a natural law of supply and demand.

INTERPRETATION OF EXISTING ANTITRUST LAWS

Mr. O'CONNELL. I am rather interested in the discussion you had with Mr. Cox about the possibility of having agreements between competitors in the industry. I don't know that we can develop it much more, but, frankly, I am a little bit confused. Do I understand it to be your view as a lawyer that agreement between competitors in the producing or refining or some other area of the oil industry, or all of them, which would have for its purpose, as you put it, the "prevention of uneconomic above-ground stocks of petroleum and products," which I would assume means some type of controlled production, and would also include the establishment of a proper basis for determining price—is it my understanding that you believe as a lawyer that that type of agreement between competitors could be entered into in the oil industry within the framework of our present antitrust laws?

Mr. BROWN. Yes; I think that certain phases of it could. I don't think you could make an agreement to go so far as to interfere with the normal flow of commerce.

Mr. O'CONNELL. Frankly, those are just words to me, "to interfere with the normal flow of commerce." Suppose you tell me how far specifically you could go to prevent the "uneconomic above-ground stocks of petroleum."

Mr. BROWN. I think any agreement that you would enter into to prevent waste of an irreplaceable natural resource has foundation in reason—

Mr. O'CONNELL (interposing). But let's talk about the Sherman Act, the antitrust laws.

Mr. BROWN. And unless it violates specifically the terms of the Sherman antitrust laws it ought to be done. If it violates that the agreement couldn't be made so we would be safe.

Mr. O'CONNELL. That is rather begging the question, isn't it? You want the Department of Justice to tell you that a given course of conduct is not in their opinion in violation of the principles of the Sherman Act.

Mr. BROWN. I would like to have a better understanding as to their interpretation of it.

¹ National Industrial Recovery Administration Code.

Mr. O'CONNELL. And you feel that for the competitors in the industry to sit down and establish a proper basis for determining price could also be done within the framework of the present antitrust laws?

Mr. BROWN. I think certain phases of that could be done.

Mr. O'CONNELL. What do you mean by certain phases? These provisions here are not so qualified. The principle of establishment of a proper basis for determining price seems to me to be partly price fixing.

Mr. BROWN. That is what I attempted to explain. I don't think there is any price fixing in that.

Mr. O'CONNELL. You would fix only certain elements that go to make up petroleum price.

Mr. BROWN. Determining on what base a price should be, what base you use, in determining price you pay for crude.

Mr. O'CONNELL. How many factors of the total price would you have to determine, before you would get into price fixing? I don't know that I follow you exactly.

Mr. BROWN. I think only one. That is whether you begin with realization or begin with cost. I think that is all you would need to determine.

Mr. O'CONNELL. All you need to determine in order to what?

Mr. BROWN. To let the flow of price come in a natural way.

Mr. O'CONNELL. Oh, I wanted to know how many factors you would have to determine in order to be in violation of the Sherman Act.

Mr. BROWN. I don't know.

Mr. O'CONNELL. But you have no hesitancy in saying that the establishment of a proper basis for determining price would be all right.

Mr. BROWN. No; I say that that is one of the things we seek to do, to find a means of doing by agreement.

Mr. O'CONNELL. Between so-called competitors in the industry.

Mr. BROWN. That is right. I would feel perfectly free in doing that, because the agency created would have the responsibility of saying, "Well, this can't be done," and then it would stop.

Mr. O'CONNELL. That would sound to me as though you would like to have an agency created or an existing one authorized to grant exemptions from the provisions of the existing antitrust laws.

Mr. BROWN. That certainly isn't the intention. It is certainly not the intention of those that authorized this.

Mr. O'CONNELL. There is one other question I would like to ask. In discussing the difficulties that arose because of the ownership of pipe lines by the producing companies or refining companies, you suggested that some types of State law had been enacted which I understood you to say had to some extent eliminated the difficulties caused by that situation. Would you repeat what they were?

Mr. BROWN. Ownership of pipe lines?

Mr. O'CONNELL. I understood you to say that there were certain State laws having to do with compulsory purchasing or something of that sort.

Mr. BROWN. Oh, that is State laws making pipe lines common carriers first, and then they have the common purchaser; that is that

you can't come in and purchase from your lease or your friend's lease in a field to the exclusion of everyone else around; in other words, you have the only pipe-line connection in there and you must take equitably from those that are allowed to produce in that field, else a pipe-line company could drive every fellow out of that business in that field.

Mr. O'CONNELL. How does that particular legislation solve the problem of the individual or independent producer? Do you mean it enables him to sell?

Mr. BROWN. It insures him a part of that market. He won't be cut off.

Mr. O'CONNELL. But it also limits his market to that end of the pipe line and to the owner of the pipe line as a purchaser. Is that correct?

Mr. BROWN. Oh, no; anybody else can come in.

Mr. O'CONNELL. Whose pipe line would they use?

Mr. BROWN. I don't know. They could probably haul it out by rail or probably make an arrangement with this pipe line so part of it would go out over the same pipe line. That is and could be done.

Mr. O'CONNELL. Can the independent producers make arrangements to use the pipeline in that situation?

Mr. BROWN. I imagine they could. They don't do it often because they always sell at the field.

Mr. O'CONNELL. I understand they always sell. I wondered whether they always sold because of the situation that arose by virtue of the ownership of the pipe lines.

Mr. BROWN. I rather think that the reason they do it probably is because they have always done it.

Mr. O'CONNELL. But I understood it was your group that was to some extent responsible for legislation, State legislation, after pipe lines were made common carriers, which made it necessary for the pipe-line owners or whoever is purchasing in the field to use this common carrier, so I take it there was a problem to you people.

Mr. BROWN. Yes, indeed.

Mr. O'CONNELL. So would it not follow that the sale of the crude by independent producers at the well, so to speak, is the result of the situation created by the ownership of the pipe lines?

Mr. BROWN. I am not quite sure that I understand that.

Mr. O'CONNELL. Maybe I am making it a little too complicated. As I understood it, you testified that a difficult situation for the independent producer was created by virtue of the fact that pipe lines were owned by producers, right?

Mr. BROWN. Owned by—

Mr. O'CONNELL.—by producers or by integrated companies.

Mr. BROWN. I don't know that I said quite that.

Mr. O'CONNELL. You might restate it the way you stated the problem.

Mr. BROWN. I said one of the problems that confronted us was that the pipe lines were the purchasers, the owners of the pipe lines were also the purchasers of our crude in a very large part of the fields.

Mr. O'CONNELL. Right there, what problem was created by that situation?

Mr. BROWN. The problem then that I stated was, since they were the purchasers, they could select from whom they would buy, and since they were the only outlet through the field, and probably the only purchasers in the field, if they could buy only from John Jones, John Jones could continue to run his oil and we couldn't ours, so he would draw the oil out from under our lease.

Mr. O'CONNELL. Then I understood you to say the next step was that pipe lines were declared to be or made to be common carriers. Did that improve your situation?

Mr. BROWN. It made it more amenable to the State regulatory laws; yes.

Mr. O'CONNELL. I don't understand you.

Mr. BROWN. It made the pipe lines available to anyone who wanted to use them, theoretically at least, and in fact, in many instances.

Mr. O'CONNELL. Then following the making of the pipe-line companies common carriers, it was still necessary to do something to solve the problem which you have of selling.

Mr. BROWN. That is right.

Mr. O'CONNELL. And that was solved in part by requiring the owner of the pipe line to buy on a pro rata basis from all people in the field.

Mr. BROWN. That is right.

Mr. O'CONNELL. Does that solve your problem?

Mr. BROWN. It helped it very materially.

Mr. O'CONNELL. Have you still a problem?

Mr. BROWN. Oh, yes; we have problems.

Mr. O'CONNELL. I mean in connection with that.

Mr. BROWN. Not so much. There has been some during the past year, but most of it has been corrected. There would be times, for instance, where they would go in, and they do yet in some of the fields, and probably they have some reason, I don't know; but anyway they will elect to buy oil from this man and leave this man over here unconnected. Then he has no market outlet and this man is producing all the time and the other feels that he is being prejudiced. Therefore, it creates a lot of trouble, and he is prejudiced in his own rights.

Mr. O'CONNELL. Do you happen to know whether pipe lines under the laws under which they operate are required to take whatever oil is offered them for shipment?

Mr. BROWN. There is a general law to that effect, but there are limitations on it, the provisions of which I am not familiar with. You have to make certain tenders in amounts, and so on, but the detail of that I wouldn't want to quote.

Mr. O'CONNELL. You think as a practical matter it is still possible for a pipe line to accept the oil from some producers and refuse to accept it from others; or not accept it from others?

Mr. BROWN. Well, to a limited extent it has been practiced in the past few years in some States.

Mr. O'CONNELL. Do you think that practice is indulged in in part because of the fact that the owners of the pipe lines are in many cases producers and the purchasers of oil, of crude oil?

Mr. BROWN. I don't think that enters into it so much as probably that rather than move over another connection into another lease or another district, they would rather take what they have from this one

where they are already connected. The matter of convenience I think probably enters into it as much as any other thing.

Mr. O'CONNELL. You don't think the ownership of oil wells or being in the market as purchaser would have any effect on the attitude of the pipe-line company in regard to that?

Mr. BROWN. I wouldn't say it wouldn't have any effect.

Mr. O'CONNELL. But you don't know how much effect?

Mr. BROWN. No; I don't know how much effect. Naturally, it would have some effect.

Mr. AVILDSSEN. Mr. Brown, you were telling us about your association. I don't believe you told us approximately how many members you have or where they are located, in what States.

Mr. BROWN. We have membership in all of the oil-producing States. The exact number I don't know, it runs into several thousand, I should say.

Mr. AVILDSSEN. Are there a number of independent associations or are most of the independent producers in your association?

Mr. BROWN. There are a number of associations. In fact, there are a number of associations in territories where we don't attempt to have members because the problems that they have are problems we can handle for the association and we don't attempt to have members there. The effect of it is that we represent their membership on matters national.

SPONSORSHIP OF THE CONNALLY HOT OIL ACT

Mr. AVILDSSEN. Yours is the principal national association of independent producers?

Mr. BROWN. I think so; yes.

Mr. AVILDSSEN. What percentage of the independent producers are in your association, would you say?

Mr. BROWN. I would say maybe 20 to 30; I wouldn't want to tell you unless I knew better but that is a rough guess.

Mr. AVILDSSEN. You think there might be 70 percent who don't belong to any association, any national association?

Mr. BROWN. No; I wouldn't want to say that. There are a lot of independent producers, for instance, that belong to the American Petroleum Institute, and a lot of independent producers that belong to various separate groups, and some don't belong to any, except some State group; they don't belong to any national association. But I would say when you take into consideration those that we represent through State associations, where they don't have direct membership in ours, it would run much higher than 20 or 30 percent.

Mr. AVILDSSEN. I see. Now, you said that your association sponsored the Connally Hot Oil Act?

Mr. BROWN. Yes.

Mr. AVILDSSEN. And were primarily responsible for that enactment, you felt.

Mr. BROWN. At least we were the first advocates of it.

Mr. AVILDSSEN. Did any of the major producers oppose that law? Was any other association opposing that law?

Mr. BROWN. At first we tried to get them—we submitted it to them before we ever submitted it to Congress, hoping they would go along with us on it. At that time they wouldn't do it.

Mr. AVILDSSEN. Why did they say they wouldn't go along?

Mr. BROWN. I don't know; I didn't ask them the reason.

Mr. AVILDSSEN. Did they give you any reason?

Mr. BROWN. They just said the group didn't approve it. Later on they did approve.

Mr. AVILDSSEN. But there was no real concerted opposition on the part of the major companies to that law?

Mr. BROWN. Not in concert. There probably was individually but not in concert.

Mr. AVILDSSEN. Why would they individually?

Mr. BROWN. I don't know.

Mr. AVILDSSEN. You have no suspicion of why they might have opposed it? I couldn't see myself why they would.

Mr. BROWN. I don't know of any. There was no concerted opposition, as I say.

Mr. AVILDSSEN. I should think they would benefit from it as much as the independents.

Mr. BROWN. They should. We thought they would. As a matter of fact, we thought they ought to be more interested and I think they now recognize that they would, that the whole industry is benefited by it.

Mr. AVILDSSEN. Mr. Brown, have you any idea as to how much of the independent producer's product is sold to an independent refiner as compared to the percentage that is sold to the major company?

Mr. BROWN. Oh, it is a very small percentage that goes to the independents.

Mr. AVILDSSEN. The independent producer doesn't try to do business with an independent refiner? There is no great amount of cooperation between the little fellow in the producing with the little fellow in the refining field?

Mr. BROWN. In many instances the independent refinery was built because of troubles in marketing of the crude that he produced, and that has later resulted in integration of a lot of independents that would not otherwise have taken place, and there is often cooperation to that extent. Maybe two or three or four or five producers will be interested in one of the producers who has bought a refinery.

Mr. AVILDSSEN. But generally there is no cooperation there.

Mr. BROWN. No; I don't think there is. As a matter of fact, they usually sell—

Mr. AVILDSSEN (interposing). I notice your association seemed to be interested in the welfare of the small refiner and that is what made me ask about it.

Mr. BROWN. That is right. We have a feeling the best thing for the oil industry and the best way to prevent monopoly is a strong competitive situation with a large number of independents in both production and refining. We would like to see as many healthy independent refiners as possible, just like we want to continue as many independent producers as possible.

Mr. O'CONNELL. Mr. Brown, I also understood you to say that the independent producers in major part dealt with the major companies, insofar as the refining end was concerned.

Mr. BROWN. You mean selling their crude—I think that is true.

Mr. O'CONNELL. You hope the independent producers will stay in business and sell to the major companies?

Mr. BROWN. No; I mean there is so much more of the major demand than of the independent.

Mr. Cox. Has that percentage been going up in recent years, Mr. Brown, with more and more of the oil of the independent producers being sold to the major companies, or less and less?

Mr. BROWN. I would say probably in the last 2 or 3 years it has been more. In other words, there have been a lot of independent refiners going out of business in the last few years.

Mr. AVILDSSEN. I suppose very frequently the independent producer sells to one of the major companies' pipe lines and that pipe line in turn sells to independent refiners.

Mr. BROWN. I think that often happens; yes; because probably the independent refiner has no transportation system to that field. It is a natural operation.

Mr. AVILDSSEN. Now, Mr. Brown, you talked about the situation that you would like to see where, say, the Department of Justice could tell you that it would be all right for the members of your association or independent producers to agree on a formula for fixing the cost of the crude oil, provided that that formula limited itself pretty much to the matter of not selling below their actual cost; is that right?

Mr. BROWN. Yes.

Mr. AVILDSSEN. You felt if they merely agreed not to sell below cost that would not be harmful to the independent producers?

Mr. BROWN. I don't think that was quite what I meant. What I was trying to say was that we feel that crude ought to be marketed on some known basis. We don't think it is fair to the public or to the producer to have such an unknown situation as often exists, and we think there ought to be a known base and we think that base ought to begin with the cost of production and work from there up.

Mr. AVILDSSEN. That is what I mean.

Mr. BROWN. Whether we could work that out in agreement or not, that is what we would like to try to do.

Mr. AVILDSSEN. But I mean you think the Department of Justice ought to say to you, "There is nothing wrong in agreeing that you will not sell below cost, agreeing that your price will be at least cost"?

Mr. BROWN. I don't think that was involved. I think the point involved was, What do you base your price of crude on? Do you base it on what is left over after you have sold your gasoline, or taken out your cost, or do you base it on a reasonable cost basis? That doesn't mean that you would always pay cost, but it would mean that that is the foundation. Sometimes it goes below and sometimes above it.

Mr. AVILDSSEN. Now you are talking about how the buyer bases his price?

Mr. BROWN. That is right, what he will pay for crude.

Mr. AVILDSSEN. I should think the agreement would more naturally take the form of the seller's, the law providing that the sellers would agree.

Mr. BROWN. Not to sell?

Mr. AVILDSSEN. Not to sell below cost. That is the way most pools were under the N. R. A.

Mr. BROWN. I don't know whether that could be worked out or not. Frankly, I don't know.

Mr. AVILDSSEN. Because in your business, the price is posted by these pipe-line companies which are in turn producers.

Mr. BROWN. Often producers also.

Mr. AVILDSSEN. Has anybody in your industry ever worked out—did you have under the N. R. A. workable formula on not selling below cost or a reasonable cost?

Mr. BROWN. We had a formula that seemed to some to be fair. I don't know enough of the details of the marketing to know whether it was or not.

Mr. AVILDSSEN. Wouldn't it involve an immense amount of checking up on the part of a Government agency? Wouldn't there be innumerable arguments as to what is cost?

Mr. BROWN. Yes. If you tried—

Mr. AVILDSSEN (interposing). I mean is the thing practicable, that is what I want to know.

Mr. BROWN. I don't think it would be practicable to say in all instances you must have cost. That is not my idea at all.

Mr. AVILDSSEN. Is any kind of formula practical?

Mr. BROWN. I don't know. It would be difficult; I would say that.

Mr. AVILDSSEN. In other words, you are asking for something here which you admit is not possible to work out?

Mr. BROWN. No; I don't admit—

Mr. AVILDSSEN (interposing). Then explain what you mean there.

Mr. BROWN. I said I knew of no formula, but it is an ideal we are working to, to find a means of basing—

Mr. AVILDSSEN. But so far you haven't found such a formula?

Mr. BROWN. We have not. As a matter of fact, I can find one no place, anywhere I go. I can't find where they base the price they pay for a barrel of crude.

Mr. AVILDSSEN. And your association has not worked out what you think would be a workable formula for the industry?

Mr. BROWN. No; we have not. But we think if we had a law we might approach it.

Acting Chairman REECE. Mr. McConnell, have you any questions?

Mr. McCONNELL. No questions.

Mr. Cox. I have a few more I would like to ask. Mr. Brown, did your association appoint a committee some time ago to study the whole question of pipe lines?

Mr. BROWN. Yes.

Mr. Cox. Did that committee make a report of any kind?

Mr. BROWN. Yes.

Mr. Cox. Would you like to furnish the committee a copy of that report?

Mr. BROWN. Yes; I will be glad to. I have a limited number here.

Mr. Cox. Just one will be enough.

Mr. BROWN. There were more questions involved than just pipe line, but that was in it.

Mr. Cox. I think it might be interesting to offer this for the record and perhaps reserve the decision as to whether or not it should be printed.

Acting Chairman REECE. It may be accepted with the understanding the decision as to whether it may be printed may be announced later.

(The report referred to was marked "Exhibit No. 1180" and is included in the appendix on p. 7563.)

Mr. Cox. Just to clear up one matter which was left somewhat in doubt in my mind as the result of your answers to the questions of the committee. Is it your opinion that an independent refiner who uses railroad transportation can compete with refiners who use pipe-line transportation, either for crude oil or for gasoline?

Mr. BROWN. You are getting into a subject on which an opinion from me wouldn't be worth much.

Mr. Cox. You would rather not express an opinion?

Mr. BROWN. No; I don't know enough about it.

Mr. Cox. You say that your association sometimes receives complaints from independent refiners about the difficulties that they have in business?

Mr. BROWN. Oh, yes. It is a perfectly natural intercourse.

Mr. Cox. And do not complaints ever relate to their inability to compete with the larger companies who use cheaper methods of transportation?

Mr. BROWN. I think I have heard that raised, yes; by a number of them. But I never checked into the data. I have had them discuss it with me. Many of the problems of the refiner are discussed with me. When I say with me I mean with our association, and that is one of them.

Mr. Cox. Is it your opinion that those pipe lines, both crude lines and gasoline lines, are now in fact operated as common carriers?

Mr. BROWN. Well, I don't—that is not the way they are operated. I don't know whether they could be operated that way or not. I don't think there is very much use of them as common carriers. I will put it that way.

Mr. Cox. Now, one more question, Mr. Brown. Is there really very much doubt in your mind as to the present legality of an agreement on the part of the industry to limit the production of manufactured products?

Mr. BROWN. No.

Mr. Cox. You think it is legal?

Mr. BROWN. I think it is legal.

Mr. O'CONNELL. I would like to have you give us some authority for that proposition, if you have any at hand.

Mr. BROWN. I haven't any with me.

Mr. O'CONNELL. It is a very novel view, as far as I know.

Mr. BROWN. As I stated to you a while ago, I base that on certain—I don't think you can go into a full agreement as to your production, but I think you can agree that certain operations constitute waste, and beyond that it should not be indulged in.

Mr. O'CONNELL. Is that what you mean by the prevention of un-economic above-ground stocks of petroleum?

Mr. BROWN. That is what I mean.

Mr. O'CONNELL. And you believe that an agreement between all of the producers of crude oil in this country to reduce the amount of production would be legal under the Sherman Act?

Mr. BROWN. I don't think you would want to, necessarily, have that between all of the producers; no. I think that—

Mr. O'CONNELL (interposing). Let's say between 90 percent of them.

Mr. BROWN. I think you would have specific cases; I don't have in mind an over-all agreement; I have in mind specific operations that could be covered by that.

Mr. O'CONNELL. When you are referring to agreements within the industry, aren't you speaking of the whole industry? I mean as far as producers are concerned, all the producers.

Mr. BROWN. I don't mean an over-all agreement; I mean the right to make it any place within the industry where it is necessary to effect a saving.

Mr. O'CONNELL. Well, then you wouldn't quarrel with me that it would contemplate possibly an agreement between all units in the industry?

Mr. BROWN. That might be possible. I don't see how it could be operative and I don't see—I could easily see how it could be illegal.

Mr. O'CONNELL. Could you tell me how to prevent the stocks of petroleum products above-ground without the agreement to produce?

Mr. BROWN. I think the States have absolute control.

Mr. O'CONNELL. Let us discuss the Sherman Act; we are talking about what can be done under the antitrust laws.

Mr. BROWN. You are asking me how we could effect this condition, and I was beginning with the States. I think the States can take notice of the fact that excess production constitutes waste. Therefore, they may reduce their operations to prevent that. Then, I think excess imports brought in here would contribute to that, and that should be prevented. There is probably no way of preventing that except by a national act of Congress. So I think you can effect that part in that way, without agreements, but now under the agreements I am talking about it is very often in pools and in groups—I mean in areas, group of pools. We can work out agreements to effect a production program there that might or might not be interpreted as violations of the antitrust law, but I don't think they would be; but I think if they were made and it was known that they were not, we would have no difficulty then in proceeding with them.

Mr. O'CONNELL. I take it there would be no problem unless the agreement was for the purpose of to some extent curtailing production in a given area, or in all areas. Is that correct?

Mr. BROWN. Well, I wish I could feel that way. My feeling, and many of our folks feel—

Mr. O'CONNELL (interposing). Obviously, it wouldn't be to stimulate production?

Mr. BROWN. Many of our folks feel just as I have said, that it might be interpreted that any agreement they make between the operators either for good or for ill, is a violation of the antitrust law.

Mr. O'CONNELL. Well, let's not characterize them for good or ill; what I was trying to do is to limit our discussion to whether or not an agreement between the competitors in the oil industry to restrict production could be done under the Sherman Act, and you ventured the view, as I understand it, that it can be?

Mr. BROWN. I don't think I went quite that far. I said agreements between producers and operators of refineries; the small and the large is the way that is worded in there; between the small and the large. That isn't an agreement between competitors.

Mr. O'CONNELL. Where is that language?

Mr. BROWN. I think in the preliminary.

Mr. O'CONNELL. I am confining myself to the specific recommendations.

Mr. BROWN. That is abbreviated there as much as we can, but referring of course to the general problem. I think if you will turn back to pages——

Mr. O'CONNELL (interposing). I don't think there is any point in continuing this. I think we are probably pretty far apart on what the Sherman Act means, and I don't think we will get anywhere by continuing the discussion.

Acting Chairman REECE. Any further questions? The committee appreciates your appearance. Likewise, it appreciates the statement which Mr. Fell prepared, and regrets the nature of the circumstances which made it impracticable for him to be here.

The committee will stand in recess until tomorrow morning at 10:30.

(Whereupon at 4:20 o'clock the committee stood in recess until 10:30 a. m., Friday, September 29, 1939.)

INVESTIGATION OF CONCENTRATION OF ECONOMIC POWER

FRIDAY, SEPTEMBER 29, 1939

UNITED STATES SENATE,
TEMPORARY NATIONAL ECONOMIC COMMITTEE,
Washington, D. C.

The committee met at 10:40 a. m., pursuant to adjournment on Thursday, September 28, 1939, in the Caucus Room, Senate Office Building, Representative B. Carroll Reece presiding.

Present: Representatives Reece (acting chairman), and Williams; Messrs. Henderson, O'Connell, Davis, and Brackett.

Present also: Clarence Avildsen and Robert McConnell, representing Department of Commerce; Quin Shaughnessy, representing the Securities and Exchange Commission; Representatives Disney (Oklahoma) and Mapes (Michigan); Hugh Cox, W. B. Watson Snyder, F. E. Berquist, Christopher Del Sesto, special assistants to the Attorney General, Leo Finn and Roy C. Cook, Department of Justice.

Acting Chairman REECE. The committee will come to order, please.

The next witness scheduled is Mr. Louis J. Walsh. Is Mr. Walsh present?

TESTIMONY OF LOUIS J. WALSH, VICE PRESIDENT, EASTERN STATES PETROLEUM CO., INC., NEW YORK CITY

Acting Chairman REECE. Do you solemnly swear that the testimony you shall give in this procedure shall be the truth, the whole truth, and nothing but the truth, so help you God?

Mr. WALSH. I do.

Acting Chairman REECE. As I understand you have a statement which you wish to present to the committee and then make a summary yourself at this time.

Mr. WALSH. That is correct.

Acting Chairman REECE. You may proceed in that order, the statement being admitted and made a part of the record.

(Mr. Walsh's prepared statement was marked "Exhibit No. 1181" and is included in the appendix on p. 7573.)

Acting Chairman REECE. After that, Mr. Cox and Mr. Snyder will ask some questions.

Mr. WALSH. The Eastern States Petroleum Co. is an independent refining—

Acting Chairman REECE. The committee would appreciate your giving for the record your position, address, and background of experience.

Mr. WALSH. I am a graduate mechanical engineer. My first oil experience was with the Prudential Oil Co. in Baltimore in 1915. I became associated with the Beacon Oil Co. in Boston, Mass., in 1919, becoming executive vice president of that company in 1925 and continuing in that position until 1931.

FORMATION AND HISTORY OF EASTERN STATES PETROLEUM CO.

In 1932 I assisted in the formation of the Eastern States Petroleum Co. and became a vice president of that company at that time and have been a vice president since that time.

The Eastern States Petroleum Co. was organized early in 1932 by myself and three associates. Mr. Kahle, the president of the company, has had a long and varied experience in the oil business and was with the Standard Oil of New Jersey for a number of years. In 1923 he became president of the Louisiana Oil Corporation and in 1926 he became president of the Beacon Oil Co. He continued in that position until about 1931 and came back with the Standard of New Jersey.

Then in '32 he joined us in the formation of the Eastern States Petroleum Co. The other two associates of the company, Mr. McCarthy and Mr. Armstrong, have had similar long and varied experience in the oil business, not only with major companies but with independent companies.

We formed this company, each of the four associates having an equal share of the capital stock of the company, and it has continued that way until this time. It was entirely a personal enterprise.

Mr. AVILDSSEN. What size was the company, the capital?

Mr. WALSH. The original capitalization was \$75,000 and has not been changed.

Mr. AVILDSSEN. What is the net worth today, approximately?

Mr. WALSH. I would say approximately a half million dollars.

In 1928 to 1930 all the independent refineries on the east coast had been purchased by major interests. For example, the Beacon Oil Co. that Mr. Kahle and I were associated with was purchased by the Standard Oil Co. of New Jersey. The Massachusetts Oil Refining Co. was purchased by the Cities Service Co. The New England Oil Refining Co., at Fall River, Mass., was purchased by the Shell interests. The Prudential Oil Corporation of Baltimore was purchased by the Continental Oil Corporation. The Warner-Quinlan Co. of New York was purchased by the Cities Service Co. At that time there were no independent refiners left on the east coast or the Gulf coast east of New Orleans. In 1932 there was a large surplus of gasoline and other petroleum products in the East Texas field. There was a surplus of tank steamers. There was a larger number of independent marketers along the Atlantic seaboard who had no independent refinery source of supply. It was our plan in forming the company to take East Texas as our source of supply and ship the products by rail to Houston or any Gulf port, and ship by tank steamer from Houston to the Atlantic seaboard and market the products to independent refiners in this area. This program was successful, and we did very well.

In 1933 the major oil companies organized what is commonly known as the tank-steamer pool. The purposes of the pool was for each

member of the pool to put in a certain percentage of their ships. They were to reserve 84 percent of the ships required to carry their own material, the balance of 16 percent to be put into the pool. These ships had been operating along at cost and charter rates of 14 to 18 cents per barrel. Under the pool plan, the major companies reserving 84 percent of their own ships at the 14- to 18-cent rate, would practically go along on the same basis as they had been going, by putting 16 percent of the tonnage into the pool. An independent operator wanting tonnage would have to go to the pool and charter ships from them. The charter rate proposed was 42 cents per barrel. This high rate was to pay the members of the pool for ships that from time to time they had to lay up.

The net result of the whole thing was that an independent requiring ships could go to the pool and, by paying 42 cents per barrel, could have products moved from the Gulf coast to the Atlantic seaboard. The major company moving products from the same point to the Atlantic seaboard, on 84 percent of his business his cost would be 14 to 18 cents. On the remaining 16 percent his cost would be 42 cents, so that his average cost would be about 21 cents, as compared with 42 cents to the company that was not a member of the pool.

We, of course, protested, and a number of other people protested. Thanks to the Department of Justice, that pool was never put into effect. It didn't die there, however. It was revived sometime later and under the N. R. A. it very nearly became a law. However, it isn't. We, of course, continued our marketing business on the east coast.

The N. R. A. came along. Among other things the Petroleum Administration Board decreed that all commercial consumer contracts should be canceled. At that time we had a number of large commercial consumer contracts, particularly in the New York City area. For example, we supplied Third Avenue Railway, one of the biggest buyers of gasoline in the city. We at times supplied the B. M. T., who of course operated a very large bus fleet in New York and Brooklyn. The Petroleum Administration Board by decree canceled all these contracts.

In about 3 months as the result of the operations of the Petroleum Administration Board under the N. R. A. we lost about 50 percent of our business. Decrees came out so thick and fast to the Board that it was impossible to keep up with the decrees and the interpretations. A decree would come out one day and 2 days later it would be canceled or amended or changed.

That went along all during 1934. About the middle of 1934, the Petroleum Administration Board organized what was known as the East Texas Buying Pool. The theory of that was for about 29 major companies to buy not less than 3 percent of their requirements in East Texas, at prices above the then going price. They did this, and in a period of about 2 weeks the price of gasoline in East Texas went from 31½ cents a gallon to 41¼ cents a gallon.

With this raise in the price of East Texas, there was no corresponding change in prices along the Atlantic seaboard. They stayed exactly the same as they were. This condition continued for quite some time. The buying pool, the original buying pool was succeeded by I believe three others, two of which actually went into effect and were operated, and two never did come up. The last buying pool

was formed in '35, after the N. R. A. was declared invalid. The jury at Madison so found and so convicted a number of the members of this so-called buying pool.

The buying pool, so far as we were concerned, only had one effect. It put us out of business. We were confronted with a fixed selling price in New York City and the eastern seaboard, no change there whatever. On the other hand, at our source of supply prices had been substantially increased through the operation of these different buying pools.

It was necessary for us to change our whole plan of operation, which we did. We were forced into so-called partial integration. We decided that we had to go ahead and manufacture our own products. We checked the whole situation over and decided that we would build our refinery at Houston. We chose Houston because Houston was at that time, and still is, the greatest single refining center in the world, both from the number of refiners and the barrels of crude handled every day. Houston is also an excellent refiner center because of its transportation facilities. From Houston you can compete with world markets any place.

In 1935 we went ahead and spent about eight or nine hundred thousand dollars and built our refinery at Houston. We built the best plant we could build. It was modern, as up to date as anything we knew of at that time. Our plant there has a capacity of 15,000 barrels per day, of which 10,000 barrels is cracking capacity, the remaining five being topping capacity.

The price of East Texas crude which is the barometer of the entire industry on account of the size of the field had been posted at \$1 since sometime in 1933. With East Texas crude at \$1, and pipe-line transportation which we bought from other companies, from major companies, we could with a modern plant refine the crude oil at Houston, ship the products to the east coast, or export them, and compete with the major companies and make a reasonable profit. This situation continued during '35, '36, and through part of '37.

When we built our plant, proration was in effect in Texas and to some extent in Oklahoma and California. Proration from that time on became more and more stringent. The allowables in different fields were reduced. The allowables on wells in those fields were reduced time after time. Then the Sunday shut-down came, then the Saturday and Sunday shut-down, and here a short time back the complete 15-day shut-down.

The effect as far as we were concerned of proration over those years was a reducing of the supply while at the same time the demand was increasing. We had no particular objection to that.

During this period, the price of crude started going up. In late '36 it went from \$1 to \$1.10, and then in '37 it went from \$1.10 to \$1.27, and later it advanced to \$1.35.

While crude was advancing, the prices on the Atlantic seaboard stayed substantially the same. Export prices were the same.

The chart that I have made here I believe shows that situation quite clearly.¹

MR. HENDERSON. This does not show the Atlantic coast price of gasoline?

¹ Appendix, p. 7578.

Mr. WALSH. It shows the Gulf coast price and you simply add the freight to New York, which is roughly a half a cent a gallon. These are intended to be world prices.

Mr. SNYDER. Which line is the Gulf coast price on that chart?

Mr. WALSH. The top line.

Mr. SNYDER. Which line is the crude oil price East Texas, second from the bottom?

Mr. WALSH. Second from the bottom.

Mr. HENDERSON. What was your point? The point was that East Texas crude went up and the price of gasoline on the east coast remained the same, was that it?

Mr. WALSH. That was the point.

Mr. HENDERSON. That doesn't follow the chart.

Mr. WALSH. You notice in '36 the difference between the second line from the bottom and the top line. You notice that same difference, say, at the end of '37, in October or November of '37.

Mr. HENDERSON. What it seemed to me to show was that East Texas crude went up and there was a slight elevation in the gasoline price, and then around October of '37 the price of gasoline went down while crude stayed up.

Mr. WALSH. That is correct.

Mr. HENDERSON. The price of gasoline on the east coast remained the same. As a matter of fact it went down.

Mr. WALSH. I was talking average figures and didn't want to overstate it.

Mr. HENDERSON. What you mean is that you had a fixed price for crude and the gasoline price went down.

Mr. WALSH. Rather put it the other way, the gasoline price stayed the same and the crude price went up.

Mr. Cox. You were buying on a regulated and controlled market and selling on a competitive market.

Mr. WALSH. We were buying on a definitely controlled market, controlled through proration, and selling on a definitely competitive market. Our position as an independent refiner in the Gulf coast is this: We own no pipe lines, we have no production. We are connected to the pipe lines of three of the major companies. We have available to us crude from practically every field in Texas.

Mr. HENDERSON. You don't have any trouble getting crude?

Mr. WALSH. None whatever.

Mr. HENDERSON. At your Houston refinery?

Mr. WALSH. None whatever.

Mr. HENDERSON. Do you have any trouble with these three major companies with their pipe lines?

PIPE LINE PROFITS AND RATES OF RETURN

Mr. WALSH. None whatever. We have available crude from practically all the fields in Texas, New Mexico, and some fields in Louisiana. However, to get this crude to our refinery we must use transportation through one of these three major companies. We must, of course, pay the full tariff rates. These tariff rates, including the gathering, vary from 17½ cents a barrel from East Texas to Houston to 30 cents a barrel from New Mexico to Houston. These tariff rates are about twice the actual cost of operating these lines.

In other words, if we pay 20 cents a barrel in pipe-line tariffs to get crude to our refinery, 10 cents of that represents profit to the pipe-line company carrying the crude.

Mr. HENDERSON. How do you calculate that? We had a witness here sometime ago who couldn't separate that out and properly ascribe it. How do you compute that?

Mr. WALSH. I have studied figures that have been put into the Interstate Commerce Commission.

Mr. HENDERSON. On costs, you mean?

Mr. WALSH. On costs.

Mr. HENDERSON. Does that mean that you, as an independent, are dealing with a major and he has an overriding 10-cents-a-barrel differential?

Mr. WALSH. That is the point I am trying to make. To a Gulf Coast refinery a 10-cents-per-barrel profit would be a reasonable profit, so that the pipe-line differential represents a reasonable profit to the refiner, to the independent refiner without a pipe line source of supply.

Mr. HENDERSON. You mean, then, it is analogous to the old Standard Oil situation with the railroads when they got a kickback on every barrel of oil that was shipped by a competitor? Is that the point you are trying to make?

Mr. WALSH. Yes; I would say it was analogous to that.

Representative WILLIAMS. Who fixed these rates?

Mr. WALSH. The companies that own the pipe lines fixed them originally, but they were all approved by the Interstate Commerce Commission.

Representative WILLIAMS. Do you think that is an excessive charge?

Mr. WALSH. I do.

Representative WILLIAMS. Have you ever made any complaint to the Interstate Commerce Commission?

Mr. WALSH. I have not.

Representative WILLIAMS. Don't you think you might get some relief by doing that?

Mr. WALSH. Eventually I think we could.

Mr. AVILDSSEN. Why haven't you filed a complaint?

Mr. WALSH. The time element.

Mr. AVILDSSEN. What do you mean?

Mr. WALSH. For example, I know that a number of independent refiners in the Mid-Continent area have been trying for 3 years to have rail rates put more in line with pipe-line rates in the areas that they serve and they have carried that fight on very well, they have spent a lot of money on it, and after 3 years they are just about in the same status.

Mr. AVILDSSEN. Still you have not filed a complaint. It wouldn't cost you very much to file a complaint.

Mr. WALSH. I disagree with you as to cost. It would cost plenty.

Mr. AVILDSSEN. How much?

Mr. WALSH. I don't know, but I can easily imagine spending \$20,000 or \$30,000.

Mr. AVILDSSEN. What do you base that on?

Mr. WALSH. To get your information and have it plotted and charted, get your experts, and testify.

Mr. AVILDSSEN. When you say that the pipe-line company makes 10 cents a gallon profit, that their cost is 10 cents, they charge you 20 cents?

Mr. HENDERSON. A barrel.

Mr. AVILDSSEN. I mean a barrel. Are you figuring any return on their investment?

Mr. WALSH. Naturally.

Mr. AVILDSSEN. How much are you allowing for return on their investment?

Mr. WALSH. Maybe 6 percent or something like that.

Mr. AVILDSSEN. How much depreciation are you figuring?

Mr. WALSH. Whatever is allowed by the Government.

Mr. AVILDSSEN. Do you figure that after allowing the Government rate of depreciation and 6 percent on their investment they are still making a profit of 50 percent of the charge that they make, is that it, a profit of 10 cents on a charge of 20 cents?

Mr. WALSH. That is substantially correct, yes; after allowing for all fixed charges and operating charges.

Mr. AVILDSSEN. That doesn't seem to coincide with the figures submitted to this committee by the committee's advisory staff, I don't believe.

Mr. WALSH. I think those figures were 26 to 42 percent.

Mr. AVILDSSEN. That is net profit on the investment. You are talking about the percentage of profit on the gross revenue. I assume a pipe-line company turns over its investment several times in a year.

Mr. WALSH. Very, very rapidly.

Mr. AVILDSSEN. At that rate they would make, if they turned over their investment three times, at your rate of profit, 150 percent on their invested capital.

Mr. WALSH. It is a question of accounting. I think the profit returns of 26 to 42 percent are indicative. I think those figures are low. You certainly wouldn't expect them to be on the high side.

Mr. AVILDSSEN. Would it be your guess if a pipe-line company cost \$5,000,000, the gross revenue that line would take in a year if it were operating at 90 percent capacity, say, how much gross revenue would they have?

Mr. WALSH. Well, that would probably be a 50,000-barrel-a-day line, multiplied by 365, I think—I get tangled up in figures—\$150,000,000 a year, is that about right? That means that line would handle about 18,000,000 barrels a year.

Mr. AVILDSSEN. What would you think the gross revenue would be?

Mr. WALSH. I would say a \$5,000,000 line, a 300-mile line, say the tariff was 20 cents, that would give them a gross revenue of \$3,650,000.

Mr. AVILDSSEN. You figure then that they don't turn their investment over once a year.

Mr. WALSH. Oh, no; not their total investment.

Mr. AVILDSSEN. Is that common in your opinion for a pipe line?

Mr. WALSH. Yes; I think those are typical.

Mr. AVILDSSEN. Their gross volume is less than their investment.

Mr. WALSH. I would think so.

Acting Chairman REECE. The committee has present this morning two Members of the House who are very much interested in this problem—Representative Disney of Oklahoma, and Representative

Mapes of Michigan. We are very glad to have them and will be pleased to have these Members of Congress sit with the committee and when the witness is through propound any questions which might occur to them.

MR. HENDERSON. I suggest to the chairman that we could find out roughly what the profit per barrel is from the figures which are available to the staff. If Mr. Avildsen is interested we could do that.

MR. AVILDSSEN. They always talk about the percentage of profit on the investment, the pipe-line companies make so much on the investment but they don't say how much they make on the gross revenue. If they turn over their capital many times a year the percentage on the gross revenue would be small; if they turn it over only once every 2 years then the percentage on the gross revenue would be normal. It is very important to know what the gross revenue is as well as the invested capital. One figure without the other doesn't tell us anything.

MR. HENDERSON. We can make that computation of what it is on a barrel.

Acting Chairman REECE. And that can be put in the record.¹

MR. HENDERSON. On the basis of the example you gave, the witness's statement is approximately correct; I must say that from the calculations I made.

MR. WALSH. This situation of high-grade crude prices and low-products prices got serious about the middle of '37. We continued for about a year losing money every month and at the end of the year we lost a substantial amount of money. We decided something had to be done about it. It was this stringent domestic situation which led to our negotiations for Mexican crude. We began our operation on Mexican crude in August of '38, after months of search for American crude oils on which our thoroughly modern refinery could be run at a profit, after months of operation at a loss during which we saw a great deal of our surplus disappear.

In other words, we had a refinery located in the very heart of the greatest producing and refining center of the world and were forced to go outside of the country to get crude.

We believe our plant has a lower capital cost per barrel processed than our competitors, and our operating costs are lower and we are as efficient at least as our competitors in that area.

Acting Chairman REECE. Mr. Snyder, do you wish to ask some questions?

MR. SNYDER. In the spring and summer of 1935 when the gasoline price was $4\frac{1}{4}$ cents in New York City and the East Texas price was $6\frac{1}{2}$ cents, that was the tank-car price, $6\frac{1}{4}$ cents, or Gulf coast price?

MR. WALSH. The $6\frac{1}{4}$ -cent price was New York City price.

MR. SNYDER. And $4\frac{1}{4}$ in East Texas?

MR. WALSH. Yes; $4\frac{1}{4}$ in East Texas.

MR. SNYDER. Then the situation reversed and the New York City price didn't rise and the East Texas price did?

¹ See "Exhibit No. 1327", "Humble Pipeline Co.—Summary of pipe line investment and earning statistics, 1923-1938", a table prepared by the T. N. E. C. staff of the Department of Justice for the petroleum study, based on I. C. C. Published Reports; the table appears in Hearings, Part 17. See also "Statistics of Oil Pipeline Companies", published annually by the Interstate Commerce Commission.

Mr. WALSH. That is correct.

Mr. SNYDER. In those calculations you did not take into account the cost of transportation, did you, to New York City? For instance, on your chart¹ you said it was a half cent more to transport it by tanker from the Gulf to New York.

Mr. WALSH. That is correct, but after getting the gasoline at New York, you had your other costs, such as terminal cost, barge transportation and marketing costs, insurance, handling losses and things of that sort.

Mr. SNYDER. Now when your gasoline would go into distribution, what would be your cost of that East Texas gasoline in New York, approximately?

Mr. WALSH. The cost of gasoline as compared to the East Texas price should show a differential of about 3 cents per gallon.

Mr. SNYDER. In other words, you would need a 3-cent margin in order to meet the competition in New York?

Mr. WALSH. That is correct.

Mr. SNYDER. Including any profit whatever?

Mr. WALSH. Including a reasonable profit.

Mr. SNYDER. Per gallon, what would you consider a reasonable profit?

Mr. WALSH. A quarter to half a cent.

Mr. SNYDER. That is net profit?

Mr. WALSH. Net profit after costs.

Mr. SNYDER. When you went into the refining branch of the industry, you believed that you would be able to meet this situation by low-priced crude and manufacture your own products and not be dependent upon the East Texas gasoline supply, is that correct?

Mr. WALSH. That is correct. We believed that and were able to do it for a period of about 3 years.

Mr. SNYDER. It was the increase of the price of crude from \$1 to \$1.35 that dealt you the final blow?

Mr. WALSH. That is correct.

Mr. SNYDER. This refinery that you have at Houston, is it modern in every respect?

Mr. WALSH. Yes; we believe it to be thoroughly modern.

Mr. SNYDER. Are the gasoline and other products produced there comparable in quality to the brands marketed on the eastern seaboard?

Mr. WALSH. Yes; they are. During that period there were a number of sales to the major companies, and these sales were of gasoline to meet specifications of the regular products.

Mr. SNYDER. Were the specifications these buying companies gave you special specifications for those purchases or the regular branded specifications?

Mr. WALSH. They were their regular branded specifications.

Mr. SNYDER. Would you care to name the companies to whom you sold your gasoline?

Mr. WALSH. Standard of New York, New Jersey, Shell, Sinclair. We probably sold most of the major companies during that time.

Mr. SNYDER. Doing business in the New York harbor area?

Mr. WALSH. That is correct.

¹ Appendix, p. 7578.

Mr. SNYDER. Did the raise in crude-oil prices in East Texas over the period January 1935 to May 1937 affect the major oil companies to the same extent as it affected your company?

Mr. WALSH. It did not. The major companies in each case produced a substantial amount of the crude oil that they run through their refineries, so that a company buying half their oil and producing half their oil would of course be in the same position as we were so far as the half that they purchased was concerned, but they would make the additional profit on the 50 percent that they produced themselves, so the net result would be that their position would be substantially the same.

Mr. HENDERSON. I don't quite see where you mean they would make the additional profit. Where would their realization come?

Mr. WALSH. I am talking strictly—

Mr. HENDERSON (interposing). Of an integrated company?

Mr. WALSH. Yes; a completely integrated company.

Mr. HENDERSON. That is, assuming that the price of gasoline was raised, too.

Mr. WALSH. Oh, yes; assuming that gasoline went up with it, then they would benefit by it.

Mr. HENDERSON. If the price of gasoline stayed the same, it wouldn't make any difference whether you made it \$5 a barrel, an integrated company wouldn't make any more money, would it?

Mr. WALSH. The point I am making is they were penalized only half the amount we were penalized.

Mr. HENDERSON. Assuming the gasoline price was the same?

Mr. WALSH. Assuming the price was the same and the price of crude went up.

Mr. HENDERSON. You didn't put it on a penalty basis.

Mr. WALSH. I intended to put it that way.

Mr. SNYDER. Of course, your statement¹ assumes that the cost of production of the major companies is much lower than the posted price they pay for crude in the East Texas field.

Mr. WALSH. I believe that is true, and has been for 3 or 4 years.

Mr. SNYDER. I believe the other day Mr. Pew testified that an independent refiner is always at liberty to build a pipe line for his operations, or might well buy an interest in an existing pipe line and share in the pipe-line profits which the major companies allegedly enjoy. Could you do anything like that and solve your problems?

Mr. WALSH. We of course are at liberty to go ahead and build pipe lines wherever we please. With a 15,000-barrel refinery, we wouldn't be warranted in investing two or three million dollars which would be necessary to reach areas tributary to our refinery.

So far as buying a partial interest in an existing line is concerned, I don't believe that is possible. If it were possible, it probably could only be done on the basis—bought at a price which would certainly not net the 28- to 42-percent return that the present owners enjoy.

Mr. SNYDER. In other words, you believe they would sell the interest to you at the present value of their investment rather than at the original value of the investment?

Mr. WALSH. Exactly, I am sure of that.

¹ "Exhibit No. 1181," appendix, p. 7573.

Mr. SNYDER. Did I understand you to say it would cost two or three million dollars for you to build a pipe line to the East Texas oil field from Houston?

Mr. WALSH. That is correct.

Mr. SNYDER. How many miles is that?

Mr. WALSH. It is a little over 200 miles.

Mr. SNYDER. About \$10,000 a mile then is what it would cost?

Mr. WALSH. That is about right.

Mr. SNYDER. What size line would that be?

Mr. WALSH. Eight-inch.

Mr. SNYDER. Would your refinery at 15,000-barrels-a-day capacity be able to keep that line running?

Mr. WALSH. No; an 8-inch line would handle about four or five thousand barrels a day.

Mr. SNYDER. So it would be operating only about one-third of capacity.

Mr. WALSH. Yes.

Mr. SNYDER. Would there be enough independent-refiner demand in your area to take up the other two-thirds of capacity at Houston?

Mr. WALSH. No; there would not.

Mr. SNYDER. Would you say that an independent company expanding by integration and going into the pipe-line business, needs partners in the refining business to go along with him and help finance the venture?

Mr. WALSH. Will you please repeat the question?

Mr. SNYDER. I will rephrase the question. Suppose an independent refiner decides to integrate and have a pipe line, build a new one, do you think it is necessary for him to join with other independent refiners or other major refiners in order to build the pipe line and make a successful operation of it?

Mr. WALSH. Yes; I do.

Mr. SNYDER. Do you think there are many independent refiners who can spend two or three million dollars for pipe line expansion?

Mr. WALSH. No; there are none that I know of.

CONSERVATION DIFFERENTIATED FROM PRORATION

Mr. SNYDER. Do you consider the objectives of conservation and proration as being the same?

Mr. WALSH. No; I do not.

Mr. SNYDER. I wish you would explain your answer.

Mr. WALSH. I believe that conservation is strictly an engineering matter. I am entirely in favor of it. Conservation through engineering has certainly improved the operations of oil producing properties. It unquestionably reduced operating costs and over a period will undoubtedly increase the recoverable oil from whatever field it happens to be in. Conservation is good for the individual well owner, it is good for the industry, and it is good for the country as a whole.

I do believe, however, when you try to tie conservation into price fixing, and then call the combination of the two proration, that it is not a good thing. I think that proration as it has been administered has not been a good thing for the industry. I think that conservation is certainly a good thing for the industry.

Mr. SNYDER. Do you believe that some of the practices used in proration are carried to extremes in attempting to achieve the conservation principle?

Mr. WALSH. Yes; I do. The best example of that, of course, is the biggest field in the world, the East Texas field. I think that the allowables under proration as compared with the potentials for that field are ridiculous, if you try to tie them in with engineering.

Mr. SNYDER. What do you think about the use of chokes in the flow line of the well? Do you think that is good engineering?

Mr. WALSH. I am thoroughly in favor of that. I think it is good engineering.

Mr. SNYDER. Do you have any idea as to the size choke that may be used? Do you think there is a limit on the size used?

Mr. WALSH. Oh, yes; there certainly is. I believe each field, each well as a matter of fact, under best engineering practice, should be produced using a certain choke and producing a certain amount per day. I don't believe that you can arbitrarily set up an allowable per day and then work backward to the choke necessary to restrict production to that amount.

Mr. SNYDER. You think conservation should be carried on with practices pertaining to each particular well rather than to the whole field or area on a uniform basis? Is that possible?

Mr. WALSH. Yes; I believe that can be done.

Mr. SNYDER. What adverse effect, if any, has extreme proration had upon the independent refiner?

Mr. WALSH. Will you repeat the question, please?

(The reporter read the question.)

Mr. WALSH. It has restricted his source of supply.

Mr. SNYDER. In other words, his supply is totally less or in the hands of companies with which he is not connected?

Mr. WALSH. No; the total supply isn't less.

Mr. SNYDER. You think that proration turns this oil into channels which make it not available to you?

Mr. WALSH. That is correct.

Mr. SNYDER. I wish you would explain that situation, just exactly what you mean by it.

Mr. WALSH. Taking East Texas again, for example, there are several independent refiners there today that are shut down. They are unable to get a crude supply. The only way they could get it would be to go out and pay premiums to well owners in order to get sufficient crude to run their plants.

Mr. SNYDER. Do some of those refiners have gathering systems of their own?

Mr. WALSH. Complete gathering systems in the East Texas field.

Mr. AVILDSSEN. Why would they have to pay premiums? I don't understand.

Mr. WALSH. You and I would own a well; we are selling to, for example, a major company. There is no reason in the world why we should disconnect from the major company and sell to an independent producer. He must offer something.

Mr. AVILDSSEN. What is the difference between that and the situation which prevailed when the independent built the refinery?

Mr. WALSH. At that time, the well owners were having difficulty getting connections.

Mr. AVILDSSEN. There was an oversupply?

Mr. WALSH. There was an oversupply.

Mr. SNYDER. Has proration affected your company in the way in which you have been describing?

Mr. WALSH. Yes; exactly that way.

Mr. HENDERSON. You don't mean that you have had to shut down. Didn't you say in response to my question you had no difficulty in getting crude?

Mr. WALSH. That is right. We had no difficulty in getting crude but at the price we had to pay we showed an operating loss.

Mr. HENDERSON. Do you have to pay a premium?

Mr. WALSH. No; we paid the regular price plus the tariffs.

Mr. HENDERSON. You said, as I understood, in response to Mr. Snyder's question, exactly the same way, and you have been affected in a different way.

Mr. WALSH. Not to the same extent. We didn't have to shut down. We would have had to shut down if we had continued the way we were going.

Mr. SNYDER. When this situation came about, you switched to another source of supply?

Mr. WALSH. Exactly.

Mr. SNYDER. It is true you switched at that time to the Mexican source of supply?

Mr. WALSH. Yes.

Mr. SNYDER. Mr. Walsh, would you care to venture any opinion as to how proration affected the independent producer?

Mr. WALSH. Well, I am sure it has had a very harmful effect on the independent producer in Texas. To my own knowledge a number of the best producers there had stopped putting money in new ventures in Texas. Any new investments they have been making have been in Louisiana, Arkansas, Illinois, New Mexico, and other States where the proration laws are not so stringent.

There is no incentive today in Texas for a producer to develop new properties. The return on his investment on account of these low allowables is so low that his investment might not pay out, probably wouldn't pay out for 7, 8, 10 years. And that return is not attractive enough to offset the hazards of wildcatting and new development. I believe that eventually it will be harmful to the State of Texas.

Mr. SNYDER. In what period of years do you think his investment ought to pay out?

Mr. WALSH. In the development of new properties and wildcatting, it should pay out in certainly not over 2 or 3 years.

Mr. SNYDER. I suppose the extension of the length of time to pay out also affects his credit at the bank when he wants to borrow money?

Mr. WALSH. Yes; it affects his whole financial picture.

Mr. SNYDER. Could the present proration regulations be adjusted to liberalize the credit situation for the independent producer?

Mr. WALSH. I believe they could. I think that basically there are only four reasons for protraction. One was the East Texas field, another was the Conroe field, both in Texas; Oklahoma City field, in Oklahoma; and Kettleman Hills, in California. All four of those came in at the same time, four of the biggest fields in the world,

and it just swamped the industry temporarily, and proration was used as a means of controlling the thing until they had gone past that flush production.

I think the need for proration today is certainly questionable.

Formerly, when large amounts of flush production occurred, it was taken care of through storage, and I think it could have been done in this case if enough storage had been made available.

Mr. BERQUIST. Do you suggest the abandonment of conservation when you say that?

Mr. WALSH. Absolutely not.

Mr. BERQUIST. You differentiated between conservation and proration.

Mr. WALSH. Yes; I did.

Mr. BERQUIST. In what way?

Mr. WALSH. Conservation, I said, is strictly an engineering matter, and conservation principles should be applied to every well in the country to determine exactly the rate of production, or the optimum rate of production, for that particular well.

Mr. BERQUIST. How do you define "optimum rate"?

Mr. WALSH. The amount that will produce the greatest amount through its flowing life and the greatest total amount from the sands that that well is producing in.

Mr. SNYDER. I believe you stated that in 1935 you became partially integrated by building this refinery at Houston. Referring to page 514 of the record of September 26, Mr. Pew testified as follows:

An independent operator can always choose his field of operation. If he be in the refining business, he is in a position to choose the qualities of crude that best suit his purposes. If he is in the marketing business he can operate in those fields where the markets are highest or where the operating conditions are best.

Would you care to comment on Mr. Pew's observations in those regards?

Mr. WALSH. So far as the refinery is concerned, he can choose the location of it, and in Gulf Coast plants, of course, he has crude available through pipe lines from almost any of the fields in that territory. However, he is under this same handicap that I mentioned before of paying toll to the pipe-line company serving his plant.

Mr. SNYDER. That is all the questions I have.

Acting Chairman REECE. Congressman Williams?

Representative WILLIAMS. To what do you attribute the cause of that rather unusual rise in the price of crude back in '37? ¹

Mr. WALSH. I think it was due to proration.

Representative WILLIAMS. You mean by that, by means of proration the supply was restricted?

Mr. WALSH. Yes.

Representative WILLIAMS. In reference to the demand?

Mr. WALSH. That is correct.

Representative WILLIAMS. What was it that took place at that time? Was there any particular restriction? Wasn't the proration continuing as it had been; there hadn't been any real restriction in the output, had there?

¹ See chart in appendix, p. 7578.

Mr. WALSH. There had been a gradual restriction. For example, if the allowable in '36, some particular well, had 100 barrels a day, in '37 it might be 80 barrels a day, and in '38 it might be 70 barrels a day. There was a gradual reducing of allowables.

Representative WILLIAMS. Who did that? What was the cause of that?

Mr. WALSH. The railroad commission in Texas, for example, and the other governing bodies in the other States would get figures from the Bureau of Mines and try to set it.

Representative WILLIAMS. And it was the conscious deliberate action of some governmental body that did that.

Mr. WALSH. That is correct.

Representative WILLIAMS. Has that continued?

Mr. WALSH. Yes; it is continuing right today.

Representative WILLIAMS. Has the price of crude continued to go up?

Mr. WALSH. No; I misunderstood your question. As a matter of fact, crude is now back to \$1.10 a barrel.

Representative WILLIAMS. Why has it gone back down?

Mr. WALSH. The law of supply and demand, I would say.

Representative WILLIAMS. There has been a continued restriction of the supply, as I understood you, by reason of the governmental body.

Mr. WALSH. That is correct.

Representative WILLIAMS. And still the price has gone down?

Mr. WALSH. Yes. I would say the reduction in price was due to the reduction in prices of products.

Representative WILLIAMS. You say that is due to a decrease in demand?

Mr. WALSH. No. Competition, probably.

LOWER MEXICAN CRUDE PRICES AND TRANSPORTATION COSTS

Representative WILLIAMS. You were forced to go on to the Mexican market, as I understood you, for your crude.

Acting Chairman REECE. We are very much gratified to have our chairman with us this morning.

(Senator O'Mahoney assumed the Chair.)

Representative WILLIAMS. What was the result of that? What was the difference in the price you bought your oil at?

Mr. WALSH. The price we were able to get crude oil for was low enough so we could operate on a profit.

Representative WILLIAMS. You are still continuing that policy?

Mr. WALSH. Yes; we have been running on Mexican oil for a little over a year.

Representative WILLIAMS. How do you get it from Mexico, your means of transportation?

Mr. WALSH. Tank steamer.

Representative WILLIAMS. Is the rate of transportation lower than it is through the pipe-lines?

Mr. WALSH. Well, there are no pipe-lines.

Representative WILLIAMS. I mean the local pipe-lines. Is your transportation charge less—is what I am trying to ask you—than it was through the pipe-lines?

Mr. WALSH. Yes; on a mileage basis it is less.

Representative WILLIAMS. Well, are your transportation charges less?

Mr. WALSH. Yes; specifically our cost from Tampico to Houston is about 10 cents a barrel, and our costs by pipe-line from Texas points would vary from 17½ to 25.

Representative WILLIAMS. Then it is because of the differential in the transportation charge that enables you to operate on Mexican rather than East Texas oil.

Mr. WALSH. Partly, and crude itself is lower.

Mr. AVILDSSEN. There is no tariff on that oil?

Mr. WALSH. We operate under a bonded-warehouse arrangement.

Mr. AVILDSSEN. You reexport it?

Mr. WALSH. We bring the oil in in bond, and there is a representative of the Treasury Department there 24 hours a day, and we export everything; we sell nothing in this country.

Mr. O'CONNELL. Do you operate entirely on Mexican crude?

Mr. WALSH. Entirely.

Mr. HENDERSON. As I understand, you turned to Mexico as a source of supply on account of the unavailability except at a premium of East Texas oil. Is that it?

Mr. WALSH. That isn't quite correct. There was plenty of oil available without a premium, but the selling price of the products was such that we couldn't operate at a profit.

Mr. HENDERSON. You said the price fixed for crude was too high.

Mr. WALSH. That is correct.

Mr. HENDERSON. I went over your printed statement.¹ You say when you went in to buy Mexican oil, the Shell interests warned you not to buy from the wells which supposedly they had owned—at least, there was a conflict of opinion with the Mexican Government—or any others. Is that true?

Mr. WALSH. Yes; that is absolutely true.

Mr. HENDERSON. In other words, they told you to keep out of Mexico.

Mr. WALSH. That is right.

Mr. HENDERSON. What did they tell you they would do to you if you didn't?

Mr. WALSH. Run us out of business.

Mr. HENDERSON. When you went in, what happened?

Mr. WALSH. Well, we had considerable difficulty with our banking connections and our sales.

Mr. HENDERSON. Did you attribute that definitely to Shell?

Mr. WALSH. It happened at the same time.

Mr. HENDERSON. It hadn't happened before?

Mr. WALSH. It never happened before.

Mr. HENDERSON. Did any of your banking interests tell you it was due to that?

Mr. WALSH. No.

Mr. HENDERSON. They did bring up the question that there was possibility of legal difficulties in connection with the products, that the crude oil or products might be attached, or something of the sort?

¹ "Exhibit No. 1181," appendix, p. 7573.

Mr. WALSH. Yes.

Mr. HENDERSON. But they haven't been able to stop you?

Mr. WALSH. Oh, no.

Mr. HENDERSON. I want to be quite sure about this. Did somebody representing Shell actually tell you to keep out of Mexico?

Mr. WALSH. Yes. That is in my printed statement.

Mr. HENDERSON. You say "warned by the head of the Shell interests." Would you mind stating who that was?

Mr. WALSH. Mr. Wilkinson.

Mr. HENDERSON. Mr. Wilkinson?

Mr. WALSH. Yes.

Mr. COX. On one occasion in New York you had to resort to legal proceedings to prevent the Shell people from restraining the export of some oil, didn't you?

Mr. WALSH. Yes. We applied to the Federal district court in New York for an injunction enjoining Shell from interfering with our business. It was granted, and later another judge reversed it.

Mr. HENDERSON. Reversed the injunction so they are at liberty to interfere with your business. Is that it?

Mr. WALSH. Well, yes.

Mr. HENDERSON. Or at liberty to do things which harass you.

Mr. WALSH. Theoretically the injunction was granted and then reversed.

Mr. COX. That was an interlocutory order, you obtained in the first instance, and that interlocutory order was set aside, but there was no decision handed down.

Mr. WALSH. That is correct. The case has never been tried.

Mr. HENDERSON. How about the other American interests in Mexico? Did you have any threats from them?

Mr. WALSH. No.

Mr. HENDERSON. Why do you suppose that was?

Mr. WALSH. Shell is the biggest; I mean they own about 80 percent of the properties in Mexico; that is the reason for that, I suppose.

Mr. HENDERSON. Do you think it meant the American interests were so minor that they were indifferent to your taking it out?

Mr. WALSH. I wouldn't say "indifferent," but—

Mr. HENDERSON (interposing). You had difficulty with the major interests before when you were marketing in New York, didn't you?

Mr. WALSH. Yes; but that was just ordinary, straight, out-and-out competition; you expect that.

Mr. HENDERSON. You haven't had any in this particular case? It all lies with Shell?

Mr. WALSH. Yes.

Mr. HENDERSON. As far as intimidation is concerned.

Mr. WALSH. Yes.

Mr. SNYDER. Wasn't that due to some extent to the fact that the products which you were exporting from your refinery were sold in the foreign markets of the Shell Oil Co.?

Mr. WALSH. I believe that had a great deal to do with it. We were shipping mainly to England and France.

Mr. SNYDER. Is it a fact that none of the products refined from Mexican crude are distributed in the United States?

Mr. WALSH. They are all exported; none of them are distributed in this country.

Mr. AVILDSSEN. Has the war affected the market for your oil? Have there been greater demands since September 1?

Mr. WALSH. Yes; there has been a definite strengthening of prices.

Mr. AVILDSSEN. How much has the price gone up?

Mr. WALSH. I would say certainly more than a cent a gallon, which would be 15 to 20 percent.

Mr. AVILDSSEN. That means that your company is operating at a satisfactory profit now, would you say?

Mr. WALSH. We have been since we started.

Mr. AVILDSSEN. What do you call a satisfactory profit, what return on your net worth?

Mr. WALSH. Well, that is what you have got left after deducting liabilities from assets.

Mr. AVILDSSEN. Your capital and surplus, is that it?

Mr. WALSH. That is true.

Mr. AVILDSSEN. How much do you think you ought to make on your net worth?

Mr. WALSH. Well, I gave you a figure here a short time ago. I said: To an independent refiner 10 cents a barrel would represent a reasonable profit.

Mr. AVILDSSEN. What would that be in percentage on your net worth?

Mr. WALSH. I never figured our net worth reduced substantially to that.

Mr. AVILDSSEN. Suppose your net worth is a half million dollars. You stated, I think, that your net worth is about that.

Mr. WALSH. Yes.

Mr. AVILDSSEN. What net profit after taxes—

Mr. WALSH (interposing). I wouldn't attempt to figure it on that basis. I would figure it on barrels throughout.

Mr. AVILDSSEN. I know, but what do you think—suppose your net profit at the end of the year is \$50,000. Would you consider that a satisfactory return on your net worth?

Mr. WALSH. No; I wouldn't.

Mr. AVILDSSEN. Suppose it were \$100,000. Would you consider that a fair return?

Mr. WALSH. No; I am still trying to get back to this old figure of 10 cents a barrel. We have an investment of about \$2,000,000 in our plant.

Mr. AVILDSSEN. Wasn't there a big bond issue against it?

Mr. WALSH. No; there are no bonds outstanding whatever.

Mr. AVILDSSEN. Why isn't that part of your net worth? You said your net worth was \$500,000.

Mr. WALSH. Yes; I say the plant is worth substantially that, but we owe money and have liabilities.

Mr. AVILDSSEN. How much are your liabilities, roughly?

Mr. WALSH. Oh, I don't know, maybe a million or a million and a quarter.

Mr. AVILDSSEN. The plant has been pretty well depreciated, has it?

Mr. WALSH. The normal rates.

Mr. AVILDSSEN. I should think you would have a large indebtedness if you had a net worth of a half million dollars.

Representative REECE (to the witness). It occurred to me this might be information you would prefer not to give.

Mr. AVILDSSEN (to the witness). Is that so? If not, please say so. You see, Mr. Chairman, the statement has been made here that an independent refiner is an opportunist, he is a fellow who comes into the field and makes a large profit, and that has been stated by some of the witnesses here. I am trying to find out whether that is true; I mean I am trying to find out what an independent refiner invests, how much he expects to make, and so forth, to see if he is an opportunist. That is the reason for my question. If Mr. Walsh prefers not to tell that, that is all right.

Mr. WALSH. I see your point. Speaking of the independent refiner as an opportunist, I think that may be so if an independent goes into some particular flush field with the expectation that he will be there some 2 or 3 years. That certainly is not our case. We definitely are in the business to be there a long period; we weren't opportunists when we entered it.

Mr. AVILDSSEN. You stated that you started in 1932 with \$75,000.

Mr. WALSH. That is right.

Mr. AVILDSSEN. And in 1935 I believe you built a refinery for \$900,000.

Mr. WALSH. That is right.

Mr. AVILDSSEN. Did you borrow a lot of money to do that?

Mr. WALSH. Yes; we did.

Mr. AVILDSSEN. Did you borrow more than half of it?

Mr. WALSH. I would say substantially half of it.

Mr. AVILDSSEN. Then the other half must have been profits that you made in those 3 years.

Mr. WALSH. Yes.

Mr. AVILDSSEN. So you did make very substantial profits in those 3 years prior to building the refinery.

Mr. WALSH. Yes.

Mr. AVILDSSEN. On your \$75,000 capital.

Mr. WALSH. Yes.

Mr. HENDERSON. How did you make that money? Did you make it by underselling the market or aggressively securing your product in East Texas, or to what do you ascribe it?

Mr. WALSH. I don't believe we undersold the market any more than any of our competitors. Each competitor accuses all the others of doing that. I think in a small organization every officer of the company was working for the company. We had a well-organized organization.

Mr. HENDERSON. How were your prices in the New York-New Jersey district compared with the prices of the major companies in that period?

Mr. WALSH. We think they were substantially the same.

Mr. HENDERSON. Substantially the same?

Mr. WALSH. Yes.

Mr. HENDERSON. I would like to get at this question of the crude price. I had some discussion yesterday with Mr. Brown as to how that posted price gets fixed. Have you any ideas you would like to

give the committee as to how that price gets fixed or who fixes it?

Mr. WALSH. In most fields there is usually one predominant buyer and he sets the price. We naturally are subject to go along with it.

OBJECTIONS TO EXISTING METHOD OF PRORATION AND RECOMMENDATION
FOR CONSERVATION ON PURELY ENGINEERING BASIS

Mr. HENDERSON. What do you suppose are the factors responsible for an increase or a decrease in crude price?

Mr. WALSH. I think it is purely a question of supply and demand. I don't think there is any artificial fixing of that price.

Mr. HENDERSON. Then you think the price of crude is too high on account of the interference not at the price-fixing line but at the proration line. Is that it?

Mr. WALSH. Yes. That is, the proration affects or restricts our buying of crude, but yet on the other hand we are absolutely competitive so far as selling our products is concerned.

Mr. O'CONNELL. According to that theory and according to your chart,¹ the proration must have broken down in 1939. Is that correct? I notice the price of crude is substantially decreased in '39.

Mr. WALSH. Well, I wouldn't say that proration broke it down, but simply the price of products had gone down. Crude was probably selling a little too high back there when it was \$1.35.

Mr. O'CONNELL. You speak of the price of products. Do you mean gasoline products?

Mr. WALSH. I am taking gasoline. That represents 60 percent of the value of the crude, 60 or 70 percent.

Mr. O'CONNELL. The break in the price of crude at 39 cents is very much sharper and more substantial, apparently, than the break in the price of gasoline.

Mr. WALSH. That is right. It is generally admitted in the industry that that price of \$1.35 was too high and they were a little bit slow in reducing it.

Mr. HENDERSON. Your idea is that over a period of time the law of supply and demand did force it down?

Mr. WALSH. Oh, sure.

Mr. HENDERSON. What forced it up to \$1.35?

Mr. WALSH. The same reason.

Mr. HENDERSON. Was there a scarcity?

Mr. WALSH. I wouldn't say scarcity, but there was a good healthy demand for crude.

Mr. HENDERSON. The amount of crude that could be produced under proration?

Mr. WALSH. That is right.

Mr. HENDERSON. If you took away proration, you wouldn't have that?

Mr. WALSH. The supply would be increased so much.

Mr. HENDERSON. What do you suppose would happen to the price of crude if you took away all the proration?

Mr. WALSH. Outside of Texas, I don't believe you would have any effect. In California they had proration laws, but they never amounted to anything. It wasn't necessary to make them very

¹ Appendix, p. 7578.

stringent. The same is true in Oklahoma and most of the other States. I think if you built enough storage, you could just set your allowables according to your engineering principles and not try to fix it according to market demand or anything of that sort, just produce at the optimum rate.

Mr. HENDERSON. You mean leave that to each individual producer?

Mr. WALSH. It might be regulated by some State body or something of that kind, but—

Mr. HENDERSON (interposing). But he would have to have some terms of reference by which he decided it, would he not?

Mr. WALSH. He probably would hire an engineer. That would be the best thing.

Mr. HENDERSON. You would have it run in terms of engineering optimums rather than market optimums.

Mr. WALSH. Engineering optimums entirely.

Mr. HENDERSON. And let the market find itself.

Mr. WALSH. That is right.

Mr. HENDERSON. So that you would have it on a conservation basis rather than on a market basis.

Mr. WALSH. Strictly a conservation basis.

Mr. O'CONNELL. Were that to happen, I take it there would be a substantial increase in the supply of crude at least in the Texas area.

Mr. WALSH. There might be, temporarily, yes; there would be, temporarily.

Mr. O'CONNELL. Wouldn't there be more than temporarily?

Mr. WALSH. There might be; yes.

Mr. O'CONNELL. Wouldn't that have the effect in all probability of reducing the price of crude?

Mr. WALSH. Yes.

Mr. O'CONNELL. Over a period of time.

Mr. WALSH. Yes.

Mr. AVILDSSEN. Would you say that the production in the Texas field had been reduced steadily since '35, '36, '37, right through '38? Has production gone down right along?

Mr. WALSH. I would say, in relation to demand, yes. Maybe the total over-all production has been substantially the same. I think it is 1,300,000 a day or something like that.

Mr. AVILDSSEN. There has been no change?

Mr. WALSH. I don't happen to remember the figures, but I would say that they might have gone along at about the same, whereas demand had gone up.

Mr. AVILDSSEN. But I understand, then, that the crude price went up without any change in production, proration?

Mr. WALSH. Yes; except that for a few years prior there had been a gradual decrease.

Mr. AVILDSSEN. I am talking now about '35, '36, '37 and '38, those 4 years. In '36 and '37 there was a substantial rise in crude.

Mr. WALSH. That is right.

Mr. AVILDSSEN. And at the time of the rise there was no change in production in Texas?

Mr. WALSH. I don't think so. I think it was probably substantially the same.

Mr. AVILDSSEN. And later when there was a decline in the price of crude there was no change in production. Is that right?

Mr. WALSH. Substantially the same; yes.

Mr. AVILDSSEN. Why do you say that the production affects the price? It doesn't seem to indicate there is any relationship there. The production is the same if the price goes up or down. I am just trying to get some information. It didn't seem to coincide with this chart. I think Mr. Williams was trying to get the same point.

Mr. AVILDSSEN. All I am trying to say is that your price depends entirely on the supply and demand. There must have been a restricted supply and a greater demand or the crude price wouldn't have gone from \$1 to \$1.35, and the reduction a year or so later must have been for the same reason.

Mr. BERQUIST. Actually the demand has been increasing for crude year by year.

Mr. WALSH. Oh, yes; it does every year. Gasoline sales are increasing every year.

Mr. BERQUIST. So the market has taken more off crude each year and production has mounted along with that.

Mr. WALSH. That is correct, sir.

Mr. HENDERSON. To get back to that line of questioning as to how you made your money, I think I ought to be a little franker than I was. In the old days one used to hear that your corporation was a price-cutter in that area, and there was a considerable volume of complaint that came in at times about your company. Did you have an aggressive policy? You said that you charged about the same price as the majors. In the New York district of course it is well known, as you have pointed out in your testimony here, that for some of the gasoline sold at wholesale, the price was considerably less than it was in some of the other territories. Did the majors meet you on the nose or what did happen?

Mr. WALSH. We were aggressive, of course we were, and probably at times we did quote prices under our competitors, but I don't believe we did that—I mean I don't believe that we cut prices any more than our major competitors in that same area.

Mr. HENDERSON. Am I right that the general feeling was that those prices were lower than in some of the other sections on account of the aggressiveness there?

Mr. WALSH. No; I don't think so.

Mr. HENDERSON. You don't think they were any lower?

Mr. WALSH. No.

Mr. BERQUIST. Isn't it probably true that the New York market is one of the most competitive markets for gasoline in the country?

Mr. WALSH. Yes. Greater New York represents about 35 percent of the total volume of gasoline used in the country. I believe it is the most competitive market in the country.

Mr. AVILDSSEN. Thirty-five percent of the total?

Mr. WALSH. I think that is the total. By Greater New York I mean within a radius of 75 miles, including northern New Jersey and part of Connecticut.

The CHAIRMAN. I am sorry that I haven't had the opportunity of listening to your testimony this morning. I have just been glancing hurriedly over your statement.¹ I observe that you testi-

¹ "Exhibit No. 1181," appendix, p. 7573.

fied with respect to the purchase of the expropriated oil in Mexico that you adopted this policy reluctantly because you realized that if you did adopt it you could not sell to the major companies who had been your large customers.

Mr. WALSH. That is right.

The CHAIRMAN. In other words, prior to the contract for the expropriated oil you had been selling to the major companies.

Mr. WALSH. The contract for the unexpropriated oil.

The CHAIRMAN. After the expropriation. Is that correct?

Mr. WALSH. That is right.

The CHAIRMAN. Had you been selling also to the Shell?

Mr. WALSH. Yes; we had been selling to all the major companies up until that time.

The CHAIRMAN. Are we to understand, then, that your difficulties began after the Mexican expropriation?

Mr. WALSH. So far as selling—let me bring out this point. Expropriation occurred in March of '38, the expropriated properties belonging to certain companies that wouldn't agree to the labor laws that the Mexican Government established. Companies that did agree to them didn't have their properties touched. In addition, the Mexican Government had considerable land of their own that didn't belong to any company, from which, before expropriation, they had been producing oil, so there were really two kinds of oil in Mexico even after expropriation.

The CHAIRMAN. Yes; I understand that; but I gather from your statement that until the difficulty arose in Mexico you were selling your products to the major companies, to the Shell Co., and to any other purchaser who cared to come along.

Mr. WALSH. Our products manufactured from American crude.

The CHAIRMAN. Yes.

Mr. WALSH. That is right.

The CHAIRMAN. You were having no difficulty, then, up to that time?

Mr. WALSH. None whatever.

The CHAIRMAN. Your difficulties began after the trouble in Mexico.

Mr. WALSH. Well, after we had started running Mexican crude.

The CHAIRMAN. That is right; and I gather that you were selling the products of this Mexican crude in the market which up to that time had been dominated, let us say, by the Shell Co.

Mr. WALSH. Yes; to England and France.

The CHAIRMAN. And you were having no trouble from the major companies.

Mr. WALSH. That is correct, from the other major companies.

The CHAIRMAN. Then prior to this time, what was the situation with respect to monopolistic practices on the part of the American oil industry?

Mr. WALSH. I don't quite get that question.

The CHAIRMAN. Well, of course now, I may not have absorbed all of your statement, but as I have just said, I gather that your difficulties arose after the Mexican trouble.

Mr. WALSH. No; we had trouble before that.

The CHAIRMAN. All right; what was that?

Mr. WALSH. We were losing money.

The CHAIRMAN. Why?

Mr. WALSH. Because of an increase in the price of crude oil, with no corresponding increase in the price of products.

The CHAIRMAN. And that increase in the price of crude oil you ascribe to two things, the proration laws and the control of pipe lines by the refining companies?

Mr. WALSH. The completely integrated companies, yes; those are the two points that I tried to make.

The CHAIRMAN. So that aside from the Mexican situation, your complaint is directed against these two factors in the oil industry, is that right?

Mr. WALSH. That is correct, proration—

The CHAIRMAN. Anything else?

Mr. WALSH. No; that is all.

The CHAIRMAN. Now, I noticed your conclusion. [Reading:]

I believe there is a definite monopolistic control of the oil industry, partly by design—mostly as the result of ill-considered emergency federal legislation.

Now that statement would seem to place most of the responsibility on Congress.

Mr. WALSH. Yes; but the only point there is the Connally Act.

The CHAIRMAN. The Connally Act?

Mr. WALSH. The Connally Act, which of course is based on the foundation of the different State laws. If there were no State laws, there would be no object of the Connally Act. The Connally Act fathers the whole thing.

The CHAIRMAN. You don't like the Connally Act?

Mr. WALSH. Well, I think that the foundation of the Connally Act is proration laws which I think are not sound.

The CHAIRMAN. In other words, you believe that the States should not adopt the policy of proration at all?

Mr. WALSH. Not if they combine proration with price fixing, which is the way that it is working today.

The CHAIRMAN. Well, I notice that the second of your recommendations is "the extension of Federal control and price fixing to include control of refineries and marketing." Now, do you mean that you want Congress to pass more extensive control legislation than the Connally Act?

Mr. WALSH. Yes; make it a complete utility from well to consumer.

The CHAIRMAN. In other words, you would have the Government take complete control of the industry?

Mr. WALSH. Yes; I would rather have them do that than go along on the present basis.

Mr. Cox. This paragraph 2 is put in the alternative, isn't it?

Mr. WALSH. What page is that?

Mr. Cox. That is page 25.¹

Mr. WALSH. Yes; that is as an alternative, of course.

The CHAIRMAN. Then what is your suggestion, your definite suggestion, your primary suggestion as to what should be done?

Mr. WALSH. First put proration on entirely an engineering basis, conservation basis, divorce it entirely from price fixing. There are two factors today in proration. One is conservation, which I think

¹ Appendix, p. 7588.

represents about 10 percent, and the other factor is price fixing which represents about 90 percent.

The CHAIRMAN. Who pulls the strings on the price fixing?

Mr. WALSH. The Bureau of Mines here in Washington say that the country needs 3,000,000 barrels of oil a day during October. That is in some way split up among the different States and sent down to Texas.

The CHAIRMAN. "In some way." In what way?

Mr. WALSH. Through the oil compact, I suppose, which is an agreement between a number of States.

The CHAIRMAN. Can't you make it definite as to that?

Mr. WALSH. I really don't know how those Bureau of Mines' figures are actually split, to tell the truth.

The CHAIRMAN. Who splits them?

Mr. WALSH. I can't definitely answer that. I think it is decided between the commissions in the different States.

The CHAIRMAN. It all stands on this basis of estimate of consumption by the Bureau of Mines; is that right?

Mr. WALSH. That is right.

Mr. HENDERSON. Isn't it true that the Bureau of Mines makes a State estimate also?

Mr. WALSH. Well, I am not certain on that point, whether they split it or somebody else splits it.

Mr. HENDERSON. I think the staff could answer that question for us.

The CHAIRMAN. I am trying to get the story.

Congressman WILLIAMS. What was the answer? I think that is an important thing.

Mr. SYNDER. The Bureau of Mines, as I understand it, reports an estimated demand for crude oil for a certain month; then the Bureau of Mines breaks down that demand by the particular crude oil-producing States.

The CHAIRMAN. Of course, that may be the fact. I am trying to determine what the witness knows about the control of prices to which he has been testifying. Now you begin with this estimate by the Bureau of Mines.

Mr. WALSH. Let's say the Bureau of Mines splits that up and allocates a certain part of it to each oil-producing State, 1,300,000 barrels a day for Texas. Then the Railroad Commission of Texas tries to set the allowable in the State so that approximately that amount is produced. It may run over, but I believe they try to keep it as close as they can.

The CHAIRMAN. You believe that should not be done?

Mr. WALSH. I don't believe that should be done; no.

The CHAIRMAN. You don't believe the Bureau of Mines should make this estimate?

Mr. WALSH. No; I don't.

The CHAIRMAN. Do you know whether that is done in compliance with any requirement of law?

Mr. WALSH. I don't believe it is; in fact I am pretty sure it isn't.

The CHAIRMAN. Now, if that were not done, what would be the effect on the price situation?

Mr. WALSH. You would go back to exactly the way the business has operated for years prior to proration. Supply and demand would take care of it.

The CHAIRMAN. What would the effect be on conservation?

Mr. WALSH. No effect whatever.

The CHAIRMAN. What is your opinion with respect to the testimony that before proration there was a great waste of oil and a substantial decrease of the amount of recoverable oil in fields which were drilled under the old method, with every owner trying to get out as much as he could, as soon as he could.

Mr. WALSH. To my mind, there has never been any petroleum wasted. I think it is impossible to waste a barrel of oil.

The CHAIRMAN. You don't think that any is left in the ground when a great many wells are drilled? Now understand, Mr. Walsh, here we have the Department of the Interior supervising the development of many oil fields on the public domain. The Department of the Interior has recommended to Congress, and Congress in response to that recommendation has passed legislation authorizing the unit plan of development on oil fields on the public domain. Now the unit plan of development was justified upon the ground that it would save oil, it would conserve oil, it would increase the amount of recoverable oil in the pool to which it was applied, and that if it were not followed, it would be impossible to get out as much oil as under the unit plan of development.

Now, do you say to the committee that in your opinion those suggestions in support of these conservation policies are incorrect?

Mr. WALSH. No; I agree with that thoroughly. They are merely applying the best known engineering to those particular Government reserves, and those same engineering principles should be applied to all oil properties. Whether the result of that is to produce 1,000,000 barrels a day or 10,000,000 barrels a day, I don't think there is any tie-up between the two.

Mr. BERQUIST. Do you believe that if best engineering principles were applied so that optimum production would result—I mean by that the best use of gas pressures would be made—that the quantity of petroleum produced would be greatly in excess of what is being produced now?

Mr. WALSH. I think it would be temporarily; yes.

Mr. BERQUIST. In other words, the amount that is produced is less than that which would give an optimum result in production in the long run?

Mr. WALSH. That is true right today; yes.

Mr. BERQUIST. What would you say would be the degree of increase if optimum operation were generally applied over that which is now being produced?

Mr. WALSH. Oh, perhaps 25, 30 percent.

Mr. HENDERSON. As I gather, Mr. Walsh, what you are saying is that the Bureau of Mines estimates are made on a basis which is not related to the most efficient production of oil in the United States, but is related to market conditions.

Mr. WALSH. That is it exactly. In setting that figure, they take no account of engineering production.

Mr. HENDERSON. Let me put it another way. When they put out their monthly estimates, they do not say that the oil wells in the oil-producing States, producing on the most efficient engineering basis, will produce only this number of gallons?

Mr. WALSH. They certainly do not say that.

The CHAIRMAN. Does it all hinge upon the action of the Bureau of Mines, or does some other factor enter here in fixing the price? Suppose that the Bureau of Mines did not make this monthly estimate so that the various State commissions would have no figures, no central figures, to prorate among themselves, what would be the result?

Mr. WALSH. I think the different States acting under their State laws would try to arrive at some figure that would be probably similar to the Bureau of Mines figure. I think the Bureau of Mines figure is just an incident.

The CHAIRMAN. You think that is just an incident?

Mr. WALSH. Yes.

The CHAIRMAN. Does all of this depend, therefore, upon the action of public authorities, or does some of this price fixing flow from the action of private persons or agents?

Mr. WALSH. No; it all flows from your commissions who administer the State laws.

The CHAIRMAN. Then what do you mean by the monopolistic practices to which you refer?

Mr. WALSH. That these State laws tend to create monopoly.

The CHAIRMAN. And by that I suppose you mean price fixing?

Mr. WALSH. Well, they tend to create monopoly in that they throw the business to these larger companies.

The CHAIRMAN. In other words, your conclusion is that if we didn't have these State laws that we would have greater opportunity for independents.

Mr. WALSH. That is it exactly.

The CHAIRMAN. That the proration laws are the fundamental means of making it difficult for independents to compete with the larger company.

Mr. WALSH. That is it exactly, and the other point is the ownership of pipe lines by the major companies.

The CHAIRMAN. And on either of these two factors do you have any other suggestion?

Mr. WALSH. None whatever. If you don't change those, make the whole thing a utility; that is the alternative suggestion.

The CHAIRMAN. In other words, then, your recommendation to the committee is that the control of pipe lines should be divorced from the large producing companies, the proration laws should be abandoned—

Mr. WALSH (interposing). Except for engineering conservation.

The CHAIRMAN. Well, how would that engineering conservation be carried on under your plan?

Mr. WALSH. These State bodies would be given opportunities to check up on how these different properties are being operated, and if they are being operated not in a good, efficient manner, they might have some authority to correct it. Of course that is pretty far reaching.

The CHAIRMAN. Isn't that exactly what you are complaining about, that they do have that authority now?

Mr. WALSH. They do as far as volume is concerned.

The CHAIRMAN. Your complaint is that this authority is exercised by public authority, by public bodies upon the basis of price fixing rather than upon the basis of the largest amount of oil to be produced.

Mr. WALSH. That is correct. I would abolish the price-fixing end of it but would leave the other stay.

The CHAIRMAN. Then beyond that you wouldn't need any public authority governing the oil business?

Mr. WALSH. None whatever.

The CHAIRMAN. Are there any other monopolistic practices?

Mr. WALSH. No; those are the only two.

The CHAIRMAN. Those are the only two that you care to comment upon to this committee?

Mr. WALSH. That is correct.

The CHAIRMAN. Are there any other questions?

Mr. BERQUIST. Take the demand forecast for September, which is based upon July and August; of course, they were based upon the demand that arose in those months at the current prices, were they not?

Mr. WALSH. That is correct.

Mr. BERQUIST. Then in the forecast of demand there is no allowance made for changes in price and the result of changes in price in the increase or decrease of demand that might flow from those changes in price?

Mr. WALSH. They don't give any consideration to price whatever, as far as demand is concerned. Of course, as the price comes down as a rule demand goes up considerably more than it would normally.

Mr. BERQUIST. Do you believe if the price went down that there would be increased demand for petroleum products?

Mr. WALSH. Yes; I am sure there would be, particularly in fuel oil where you have a commodity that is in direct competition with coal. As the price of coal goes up and oil goes down, then naturally they use considerably more fuel oil.

Mr. BERQUIST. And there has been a considerable transfer, has there not, over the years in the use of fuel oil in place of coal?

Mr. WALSH. Oh, yes; a great deal. Particularly here in the East, a number of plants are equipped to burn coal or oil, depending on which is the lower in price.

Mr. BERQUIST. So there is some, you think, considerable degree in the flexibility of demand, depending upon the price level?

Mr. WALSH. Yes; there is a substantial degree of flexibility.

The CHAIRMAN. Are there any other questions?

Mr. HENDERSON. I have just one more question on that, since the element of price was introduced into that demand forecast. Is there much of a relation between pleasure-car transportation and the price of gasoline in your opinion? You testified as to fuel oil.

Mr. WALSH. I would say that the lower the price of gasoline, the greater the consumption and demand. There are 25,000,000 automobiles in the country and I think maybe 10,000,000 of them have only a certain amount of money to spend every week on gasoline.

Mr. HENDERSON. Do you think if the gasoline price were lower, they would use more gas, or would they use the money for something else?

Mr. WALSH. It would probably go both ways.

Mr. HENDERSON. Let me ask you this: what has been your observation over these years as to what happens to the consumption of gasoline with a change in price downward?

Mr. WALSH. I think it has increased noticeably.

The CHAIRMAN. Are there any other questions? If not, the committee will stand in recess until 2:30 this afternoon. The next witness will be Mr. Karl A. Crowley, of Texas.

(Whereupon, at 12:30 p. m., a recess was taken until 2:30 p. m. of the same day.)

AFTERNOON SESSION

The committee resumed at 2:35 p. m. on the expiration of recess.

The CHAIRMAN. The committee will please come to order.

Mr. Crowley, please come forward. Do you solemnly swear that the testimony you are about to give in this proceeding shall be the truth, the whole truth, and nothing but the truth, so help you God?

Mr. CROWLEY. I do.

The CHAIRMAN. You may be seated, Mr. Crowley.

TESTIMONY OF KARL A. CROWLEY, ATTORNEY, FORT WORTH, TEX.

The CHAIRMAN. Will you give your name, please?

Mr. CROWLEY. Karl A. Crowley.

The CHAIRMAN. Will you state the experience and the reason for your presence?

Mr. CROWLEY. I am a lawyer, practicing at Fort Worth, Tex. I have been engaged in practice there for about 20 years.

The CHAIRMAN. Is your practice extended to the oil business?

Mr. CROWLEY. It has. That has been my principal practice for the past 20 years.

Representative REECE. May I ask him where he lived before he went to Fort Worth, Tex.?

Mr. CROWLEY. I have the honor of having been born in your State, Congressman.

The CHAIRMAN. I think that is propaganda and should be stricken from the record.

Representative REECE. Yes; leave that out.

The CHAIRMAN. You may let it stand as long as he wants it out. [Laughter.]

Mr. CROWLEY. During the past 20 years, Mr. Chairman, my principal clients have been engaged in the oil business. They have without exception been independents. During this time I have now and then had a very small interest in some of the business. I do not pose as an expert, but I would like to make the statement on behalf of the independent producers of my State that with the hope that this committee will find some solution to this perplexing problem of monopoly that has so long engaged the attention of government everywhere, I have filed a lengthy statement. It is entirely too long to read. If I may, I would like to have it considered as read and just speak more or less extemporaneously during the short time that is allotted to me.

I will speak principally about conditions in Texas because my familiarity with the oil fields there is greater than it is anywhere else.

The CHAIRMAN. Mr. Crowley, if there is no objection upon the part of any member of the committee, your printed statement will be made a part of the record and you may proceed as you have indicated.

(Mr. Crowley's printed statement was marked "Exhibit No. 1182" and is included in the appendix on p. 7591.)

Mr. CROWLEY. Yes, indeed; and I will be glad to undertake to answer any questions any time. I don't mind being interrupted at all.

MONOPOLISTIC PRACTICES TENDING TO "SQUEEZE" OUT SMALLER INDEPENDENTS

Mr. CROWLEY. Gentlemen of the committee, this question of the oil monopoly has been before us since the early days of the Standard Oil Trust. In those days the monopoly was based upon an agreement of the Standard of New Jersey with subsidiary companies whereby they controlled production, transportation, refining and marketing. Today we have the same conditions, exactly, as led to the dissolution of the trust, finally in 1911. The only difference is that we now have a gigantic cartel owned by approximately 20 integrated major companies. The Congress of the United States has investigated the monopoly repeatedly. Recommendations of different kinds have been made for legislation. The Hepburn Act relating to the divorcement of the railroads and the coal mines grew out of the investigation by the Commissioner of Corporations, which was succeeded by the Federal Trade Commission. In 1906, I believe, they made their reports recommending the divorcement then of pipe lines as early as that time. The Standard Oil Co. was finally dissolved by the Supreme Court of the United States in 1911 because of monopolistic practices engaged in by that company which are now being engaged in by these 20 major integrated companies. I will not limit it to those 20, but include those that are integrated.

The oil monopoly has varied its activities only slightly since those earlier days. They now resort to fake conservation laws called proration laws; they hide behind the technicalities of rate making on their pipe lines and resort to those things in addition to the old practices of squeezing out the independent wherever he undertakes to operate. The East Texas oil field is an example, where the independent has been so ruthlessly mistreated as to the independent refining. There we have the greatest oil field that the world has ever seen, with a supply of oil, if those wells could be produced, that would perhaps furnish the world with crude oil for 2 years or more. There were built around in East Texas approximately 100 independent refineries to get the benefit of a plentiful supply of crude oil. No sooner had these plants been built than there was forced upon the producers and the refiners as well the drastic proration laws that we now have in Texas. I do not want to be understood as advocating the abolishment of proration. The producers everywhere have been fed the dope of high prices; they can't be taken off that dope—that is all it can be called. The law of supply and demand will naturally come into play and into existence at some future time, but it can't be done now. I agree thoroughly with the witness, Mr. Walsh, this morning, in his statement here that proration has never been used except as a means of fixing prices; that is, in

recent years. Proration was forced upon the producers of East Texas; proration has been forced upon practically every State that has adopted it, as a means of controlling production. The objective of the integrated companies today is not for further regulation by Government or to lessen regulation of Government, but to get enacted into law their unitization plan.

They must control production; they must keep the supply of oil within their control and as far back as 1928—I think this might be a good time to refer to a report made by the Federal Oil Conservation Board by Mr. Pew, who testified here. Mr. Farish and a number of others—

The CHAIRMAN. Let me interrupt you, Mr. Crowley. It has been suggested that it might be well to announce that the committee plans to hold a meeting tomorrow morning. I make this announcement in the belief that those present may not know of the plan, and some who want to be present at all of the sections might otherwise not be here if the announcement were not made. You will pardon the interruption.

Mr. CROWLEY. The Federal Oil Conservation Board on January 28, 1928, made a report. It was a committee of that board, and suggested that there be cooperative development by the unitization plan of producing oil, and expressed fear at that time that their agreement to curtail production by unitization might be in violation of the antitrust laws.

The committee recommended, and I quote the recommendation:

First, Federal legislation which shall unequivocally declare that agreements for the cooperative development and operation of single pools are not in violation of the Federal antitrust laws.

Secondly, permit under suitable safeguards the making, in times of overproduction, of agreements between all producers for the curtailment of production, and similar legislation in various other States.

That is the present objective of the integrated companies. Heretofore the hardy individual has gone out and risked his capital, discovering new oil pools, finding new sources of supply. At every time when the country has been threatened with a shortage of oil we find this independent out exploring other lands; he developed Oklahoma; he developed Texas, the Seminole field, the Oklahoma City field, west Texas, where the experts of the majors said there could be no oil; he found it. They went to east Texas, when that section had been condemned by the experts of the majors. He found the oil there and developed the greatest oil pool that the world has ever seen. This supply of crude oil has been the threat to the monopolistic control of the major companies. Now this unitization plan, along with proration, that they have in mind, and the Federal regulations as proposed by a bill introduced up here by Congressman Cole, will ultimately, if their plans succeed, give them complete and full control of the oil business; and the little fellow may as well get ready to surrender and get completely out.

The proposed bill of Congressman Cole may be discussed here, but I want to say at this time that I am opposed to it and I don't believe there is an independent oil producer in the State of Texas or in the United States that is in favor of it. It would allow the unitization of oil fields; it would allow a Federal board to have complete control of the oil business. Control would eventually become so strict

than an operator would have to come up here and get a certificate of convenience and necessity to drill a wildcat well or build a filling station down in Ottumwa, Iowa. It is a bad thing.

I would like to tell this committee how proration was accomplished in the Texas field at the end of 1931, which was the first full year of development in East Texas. There were 3,612 wells producing from 92,000 acres of land. The field began to produce far in excess of the requirements of the major oil companies and then the independent refiners began to go into East Texas. The major oil companies saw the threat to their monopolistic control by this great East Texas oil field, which now has an estimated capacity of 15,000,000 barrels an hour, if the wells could be permitted to flow that much.

Its flow would supply the United States with oil for 5 days. The majors saw this threat coming and the independent refiners began moving in and building refineries. They began to plan for the curtailment of production by urging that the legislature meet and pass proration laws. The Governor of the State declared martial law.

THE CHAIRMAN. Who urged that?

MR. CROWLEY. Governor Ross Sterling, the former president of the Humble Oil & Refining Co.

THE CHAIRMAN. You said they urged that the legislature act. Who?

MR. CROWLEY. The major oil companies.

THE CHAIRMAN. Who were the spokesmen?

MR. CROWLEY. One spokesman was—I will give you his statement—**Mr. Seubert of the Texas Co., I believe.**

THE CHAIRMAN. On page 12 of your paper I see a note there.¹

MR. CROWLEY. I understand Mr. Seubert is with the Standard of Indiana. He says this:

We are probably at the point where the industry will have to speak its piece with prices, until the State authorities particularly in Texas devise some more efficient means of control than they have brought forward to date.

The oil industry cannot live without fair profits. It cannot earn profits so long as a few nonconformists are able to wreck any kind of a price schedule that is set up.

The first posted price for crude oil in East Texas, gentlemen of the committee, was 68 cents a barrel, which ran from August to November 1, 1931.

About the time that Mr. Seubert made this statement they put their threat of price reduction into effect. Oil declined to 10 cents a barrel, and it remained at 10 cents a barrel and sold at prices ranging from 10 to 50 cents a barrel for quite awhile. It was not until September 1933 that oil again reached the price of \$1 a barrel. The Legislature of Texas had been called into special session. They passed a proration law. At that time they were not so opposed by many of the producers because we had an allowable, I think, of 225 barrels of oil per day for each well. That of course steadily declined and declined and declined until today the allowable is 20 barrels per day with 2 days' shut-down making an average of about 14 barrels of oil out of the East Texas field. That is the only field, incidentally, where the Connally law is enforced anywhere in the United States.

¹ Appendix, p. 7597.

Mr. HENDERSON. Do you mean that there is no other State that has a proration law from which there is "hot oil" being shipped?

Mr. CROWLEY. No, sir; I do not mean that. I mean that that is the only State where the Federal Tender Board operates, the only place where the Federal Tender Board operates is in East Texas. There is worlds of "hot oil" being shipped out of Louisiana, thousands upon thousands of barrels of "hot oil" being shipped out of Louisiana.

Mr. HENDERSON. Do you think that is true of the other producing States?

Mr. CROWLEY. That is undoubtedly true according to Dr. Pogue who testified here a few days ago, even as to the East Texas field. Notwithstanding the Hot Oil Act, there were about 104,000,000 barrels of "hot oil" shipped out of East Texas. Incidentally, I want to say that the little independent down there is accused of being a "hot-oil" runner. The records show that there have been 5,000,000 barrels of that 104,000,000 barrels of "hot oil" confiscated. It is a mystery to everybody concerned what became of the other 99,000,000. It is most difficult for anybody to believe that the big companies, with their pipe lines, didn't have some part in the disposition of the other 99,000,000 barrels of "hot oil" known to have been run out of the East Texas field.

Mr. HENDERSON. How about the 5,000,000 that was confiscated? Was that from the independents?

Mr. CROWLEY. I haven't any record before me of that. I haven't got a list of the defendants in the cases that were involved, but I have no doubt but that it was confiscated from independents. I don't want to be considered as condoning "hot oil" running, but I do say that the proration laws have been inequitably enforced. There has been discrimination. The independents have been closely checked up on and the majors have been the "gentlemen" of the industry and allowed to do as they pleased.

Our oil supply is based upon so-called market demand. You heard that explained this morning, how that market demand was fixed. The market demand is fixed by the nominations of the major oil companies. The majors merely indicate how much oil they would like to have and that oil is supplied to them. The independent may seek to get a supply of oil for himself, but his nominations are not controlling as they are with the majors.

The CHAIRMAN. To whom are these nominations made?

Mr. CROWLEY. To the Railroad Commission of Texas, for Texas oil. The wells of Texas now produce on an average of about 14 barrels a day throughout the State. Ten years ago they were producing about 40 barrels per day. Oklahoma produces today just about her full capacity, an average of about 8 barrels per day, and that is the total potential. The wells of California produce about 50 barrels per day, against 14 barrels of Texas. The wells of New Mexico about 42. When I say 14 barrels in Texas, I mean 14 barrels in East Texas. We have in Texas different allowables for different fields. We have different allowables for wells in the same field. There are wells in west Texas that have been allowed to produce several hundred barrels from one way in the same field where the average was about 42 barrels. Mr. Thompson is here. I am sure if you want to follow that up you can inquire into the reason for

that, but as administered today the proration laws are inequitable, discriminatory against the independent oil man of the State of Texas.

The CHAIRMAN. Is this discrimination a matter of law or a matter of administration?

Mr. CROWLEY. A matter of administration. Proration of course is based upon price fixing and the proration laws are administered in Texas for the purpose of fixing the price of crude oil. I don't suppose there is anybody who will dispute that. Conservation plays little part in it. I don't mean to say that we don't have conservation in Texas because I think we do. I do not think there is any oil being wasted in Texas, but so far as the production itself is concerned that production is based upon the question of price purely and simply. We had a meeting before the Railroad Commission where the major companies had been threatening price cuts for several weeks; the commission invited the major heads to come down; they came, and an agreement was practically reached in the open session of the Railroad Commission that the Commission would limit production for a period of 3 months to such and such a figure in consideration of which the majors would keep the price of crude oil up. That is reflected on the minutes of the meeting, and I have extracts of them right here before me where that agreement was actually made. That agreement ran for 3 months and still conditions didn't improve in the oil business, and we faced and had another cut—we had a cut in October and then we had another cut in August of this year. There was not the slightest justification in the world for this last cut. The story of that was printed in advertisements in the daily newspapers, fairly familiar to people in the oil business, and there was a little difference of opinion between the Standard of New Jersey and the Sinclair.

Sinclair advertised that he couldn't make any money out of gasoline at the price that he had to sell it for. He proposed to raise the price, published advertisements stating the reason for it; it was generally understood that Sinclair at that time was a good deal in the same position that the independent is always, suffering from a lack of crude oil at competitive prices. The Standard of New Jersey refused to go along on the raise in the price of gasoline. Sinclair said, "My only remedy is to reduce the price of crude oil," and the price of crude oil was reduced 20 cents a barrel. That ruinous price cut would have bankrupted every independent in the business. He had already been squeezed and squeezed and squeezed as to his volume of production and he simply couldn't take a price cut of 20 percent of his gross revenue. What happened at that time was simply this: Colonel Thompson, the head of the Compact Commission of the six States, got the Railroad Commission of Texas together; they ordered a 30-day shut-down. Five other States followed the example of Texas to shut down their oil fields until the price of oil increased. We had the spectacle of six oil-producing States saying to the rest of the United States, "You can't have gasoline, you can't have oil until you are willing to pay the price that we think is fair." And I think they did exactly right. I think that whatever Colonel Thompson has ever done, that this will stand out as one courageous piece of work on his part and the oil producers of Texas are for it. We are opposed to things of that

kind in principle, but who is to be the most powerful over the oil producers of the country, the Standard and Sinclair or Government authorities? There ought to be a remedy for such conditions as this so that there cannot be any ruthless price cutting, ruthless destruction of the little producer. "The little producer choosing his field," was mentioned by one of the great oil men of the country the other day. How is he going to choose his field under conditions like that? Of course, he can't choose his field! This spectacle of the closing down of these oil fields might not be what you would be in sympathy with if you lived in some other section of the country that didn't depend on oil like Texas does. Maybe you don't favor anything of that kind. We might oppose Kansas and Nebraska deciding not to let us have any wheat, but if they were the victims there of monopoly in the handling of wheat, the milling, the distribution, the warehousing of it, you might find the same sort of rebellion. Congress can find a solution to this thing.

I heard the little man referred to in contemptuous terms in substance that he wasn't needed in the oil business. Well, he has been a vital factor in the oil business heretofore. Twenty-three out of twenty-five oil wells of the United States have been discovered by this independent. He has invented the processes of refining. The old Tidewater, shut off from the coast and from its markets by the railroads and the Standard Oil Co. combination, invented the use of the pipe line. The independent producer has always gone out and found these oil fields. This statement¹ that I have filed with your committee gives somewhat of a detailed statement of the pioneering of the independent oil man; it shows, in brief form, how the oil business has been developed, and it is the little fellow that has built the oil business, just like it is the little man that has built America, and the little man only asks in the oil business, like he asks in any other business, just a fair opportunity to exist, and he can't do it with this monopolistic control of the oil business that we have upon this country today.

The refineries I mentioned awhile ago in East Texas I have heard referred to as coffee-pot refineries. Why, if it please the committee, half of the refiners of this country are coffee-pot refiners if they are coffee-pot refiners over there. There have been independents who have gone into East Texas thinking they would have an opportunity to get a supply of oil, provided they had leases of their own, that have built some of the finest smaller units of refineries in the whole country, cracking plants, all kinds of appliances—of course, they had to pay the tribute to the patent pool for the use of these things, but they built them nevertheless. They were built, nearly a hundred of them, and as the production was curtailed in East Texas their output began to be reduced. They squeezed the independent refiner out in East Texas by two methods—I mean the major oil companies squeezed the independent refiner out—first curtailing his supply of crude oil, and in the second place keeping the price of crude oil up above similar grades of crude in other sections of the country where they had a full, complete monopolization of the field.

It must be borne in mind that these integrated companies are the only purchasers of crude oil except that rare independent refiner

¹"Exhibit No. 1182," appendix, p. 7591.

who tries to operate; they are the only buyers of the product; they fix the price of oil; the price of the major company determines the market price of the oil, and that is all there is to it.

I would like to give you, on that particular point, the differential—I don't think anybody has touched upon it here—as to how the squeeze worked upon the independents. It is easy to understand how they reduced his volume, but here is how the price squeeze worked.

I have prepared a table in my prepared statement on page 85 of that report.¹ Reduced to a common gravity, it shows that the differential against a refiner operating in East Texas and elsewhere in that area of the country, ranges from 4 cents a barrel to 39 cents a barrel. You heard this independent refiner testify this morning that if he could make a profit of 10 cents a barrel on his operations he thought he was doing fine. This thing itself shows you that he couldn't make it in East Texas.

The CHAIRMAN. Do you mean by this table that the price in the East Texas field is less by the amount of the figure carried in the column labeled "Differential," or more?

Mr. CROWLEY. I mean that it is more.

The CHAIRMAN. In other words, the price for crude oil in East Texas is greater by the amount indicated in the last column on this page than the price in the second column?

Mr. CROWLEY. Yes, sir.

The CHAIRMAN. Which is the price for that gravity of oil in the fields mentioned?

Mr. CROWLEY. That is right.

The CHAIRMAN. I understand you to say that is greater.

Mr. CROWLEY. It is greater.

The CHAIRMAN. Now, is that pleasing or dissatisfying to the producer of crude oil in East Texas?

Mr. CROWLEY. Well, of course, I am just presenting facts, I am not talking about what pleases him. Naturally the producer of crude oil is pleased at the price, but to offset that, Senator, his volume of output is 14 barrels a day over there and if he happens to be operating elsewhere where the majors desire to take a good deal of oil, he gets considerably more oil out of the ground. So they keep the volume low in East Texas, and therefore they can afford to sustain some of the losses occasioned by higher prices.

Now the system is just the same as it has been for a long time, but only slightly different. They use a different method. In 1921—that is 18 years ago—I was receiver of an oil concern with a capital of \$15,000,000 engaged in the producing and refining business, and they had very little production. They bought most of their oil. Oil at that time was \$2.50 a barrel. The independents were building refineries all over West Texas, operating on ranging crew, one of two big plants started in Fort Worth and \$3.50 a barrel is what they were having to pay for crude. Oil connections were scarce, they were hard to get; it was hard to buy oil, so they began to pay a premium, 10, 15, 25, or 50 cents. This particular concern was paying about 35 cents, or \$3.85 for its oil and making plenty of money.

But suddenly overnight, without any apparent rhyme or reason or cause whatever, the price of gasoline went down, went way below the

¹ Appendix, p. 7336.

cost of buying the crude oil, so buckle and tongue wouldn't meet. This particular concern could not pay this high price for crude oil because they could not realize that much out of the refined product and they folded up, they went broke, and the wrecks of those plants remain alongside the T. & P. Railroad from El Paso to Texarkana, just like they are doing in Longview today.

The CHAIRMAN. Now you are talking about refiners.

Mr. CROWLEY. That is what I am talking about.

The CHAIRMAN. When I interrupted you with a question, you were about to tell us how some of the independents were squeezed out in the East Texas field, and I wasn't clear whether you were referring to independent producers or refiners.

Mr. CROWLEY. I meant independent refiners. Pardon me for just discussing this thing so generally and without any particular sequence, but I am trying to do it extemporaneously and save as much time as I can and tell you these points as they happen to occur to me.

But the squeeze of 1921 is the squeeze of 1938 and '39. Every plant in East Texas practically is shut down, except two or three plants over there that have been able to buy some of this confiscated crude oil that has been confiscated by the State of Texas and they might as well be junked. I have in mind one concern that built one of the finest little plants in Texas; cost them about a million dollars for the plant and pipe line. They operated that, being in the squeeze, losing money every day, until they lost about \$400,000. They finally gave it up as a bad job.

The CHAIRMAN. Now what you mean is that these independent refiners in the Texas field, in the East Texas field, were squeezed out by reason of an increase in the price of the crude; is that right?

Mr. CROWLEY. They were.

The CHAIRMAN. Now how was that increase in the price of crude brought about? I think that is the gist of the squeeze, isn't it?

Mr. CROWLEY. Well, that was just brought about by one of the companies posting notice on its door that effective on such and such a date they would pay \$1.35 a barrel for crude oil.

The CHAIRMAN. Do you think that was done by agreement among the majors in order to close out the independent refiners?

Mr. CROWLEY. Well, I don't know what it takes to make an agreement, Senator.

The CHAIRMAN. Well, of course that is always the problem in an antitrust suit and in this study.

Mr. CROWLEY. Here is the situation. These gentlemen don't need a written agreement. They have adopted the same policies, the same procedure. When one posts a price cut they all come to that. When one posts a price raise, they come to that; whether it is crude oil or whether it is gasoline. They have adopted the same policies, the same practices, the same procedure, and those policies, practices, and procedure, by mutual consent we will say, are exactly those adopted by the Standard of New Jersey, by written agreements. Certainly they violated the antitrust laws.

The CHAIRMAN. What I was driving at with my original question a moment ago was that an increase in the price of crude which would be highly pleasing to an independent producer, if he could sell, would be equally displeasing to an independent refiner who was unable to purchase?

Mr. CROWLEY. That is right.

The CHAIRMAN. Would it not?

Mr. CROWLEY. That is right.

The CHAIRMAN. So that one and the same act, assuming that it was an act brought about by agreement or by price leadership, would be hostile to the interests of one group of independents, but favorable to the interests of another group of independents. Hostile to the interests of the refiner but favorable to the interests of the producer, assuming that the independent producer could sell.

Mr. CROWLEY. That is right.

The CHAIRMAN. What I am driving at is whether or not in your opinion the difficulty in which the independent finds himself is due to the fact that for the most part he operates in only a single small field of the whole industry, where he is competing with a major company which operates in all fields of the industry and which, therefore, can balance its gains and its losses in the various departments.

Mr. CROWLEY. Well, of course that is the effect of it and if it were the ordinary usual course of business, nobody would have a right to complain, but it is not done in the usual course of business. There has been related here by other witnesses and proved from this paper that I have filed here of deliberate price wars. You will very much have that in marketing. We will take the question of crude oil prices. Now, here is East Texas, 37 gravity, 37.9 gravity, balanced against Van, Tex., about 40 miles away. Van has gravity of 34 to 34.9. The price of East Texas at the time this was written was \$1.10 a barrel. The price of Van crude was 93 cents. That 93 cents crude is all owned by practically one concern, the Pure Oil Co. You see, when the major companies get full and complete control of the production in a field, they have no fear of an independent refiner setting up alongside of them, and competing because he can't get any crude to operate on, so the best thing for them to do is to make it tough on him, like they have in Longview. We can't operate in Longview. They have closed down 100 refineries.

The CHAIRMAN. Just how did they make it tough in Longview?

Mr. CROWLEY. Well, they made it tough by hammering, hammering, and hammering until they got the output of oil reduced first to 225 barrels, down, down, and down to 20 barrels a day.

The CHAIRMAN. That is by the operation of the proration law?

Mr. CROWLEY. That is by the operation of the proration.

The CHAIRMAN. So that in order to accomplish that hammering it was necessary to have the cooperation of the officials who administered that law?

Mr. CROWLEY. That is right. That is right, and they threatened them with lobbying for an independent establishment to be set up to govern the oil business, if they didn't knuckle down and do what they wanted them to. I suppose that the railroad commission of Texas is about the worst badgered Government body in existence.

The CHAIRMAN. You mean they are threatened with a legislative campaign to do away with their jobs and set up a new commission?

Mr. CROWLEY. Absolutely; yes, sir.

The CHAIRMAN. Do those Texans submit to that sort of intimidation.

Mr. CROWLEY. Why, Senator, we have very little to say about our affairs in Texas. We have to go up to 26 Broadway to get most of our instructions.

The CHAIRMAN. I once remember hearing a gentleman from Texas; he was a member of the faculty, I think, of the University of Texas, say down here to a group of Members of Congress that Texas was the richest foreign possession of the city of New York.

Mr. CROWLEY. I don't think there is any doubt about it.

Mr. HENDERSON. Mr. Chairman, may I ask the witness a question?

The CHAIRMAN. Certainly.

Mr. HENDERSON. I want to get at two things, if I can. In the first place when a major posts a higher price in East Texas, for example, for its crude, does it benefit by sales to independents of any substantial amount on that increased price?

Mr. CROWLEY. I don't quite understand the question.

Mr. HENDERSON. Well, to put it this way, what part of the production in East Texas do the major oil companies control?

Mr. CROWLEY. Well, what part of it do they own?

Mr. HENDERSON. Yes.

Mr. CROWLEY. In East Texas they own about, I think, 45 percent.

Mr. HENDERSON. Well, do they use all of that for their own refineries and for their own marketing? Do they sell also to the independents?

Mr. CROWLEY. I can't answer you about that; I don't know.

Mr. HENDERSON. You don't know whether the major oil companies sell some of their production to independent refiners or not?

Mr. CROWLEY. I don't know. I don't think they sell very much, except they may do some exchanging. At some places they do exchange oil. But I am not familiar enough with that to answer your question.

Mr. HENDERSON. On this lucid question of the fixing of the price of \$1.35 for crude mentioned several times, for instance, who posted that first, do you know?

Mr. CROWLEY. I don't know who posted it first, but the others all fell into line right away within the next day or so.

Mr. HENDERSON. But has any evidence ever been adduced of any reliability that before the price leader posted a price he had conferred with or colluded with the others?

Mr. CROWLEY. Well, I have no evidence of it.

Mr. HENDERSON. What I am trying to get at—I think it is in all fairness, Mr. Chairman—we ought to try every time a question is brought up to see whether the witness means that he believes there is collusion, whether there is evidence of collusion, or whether there exists, as there does in many industries, a price leadership just by reason of the outstanding percentage of the business that accrues to a large unit. Now, which of those do you mean?

Mr. CROWLEY. I think I have got the answer to your question right here.

Mr. HENDERSON. I noticed in Mr. Seubert's article he talks about the price schedule that is set up.

Mr. CROWLEY. I am looking for the reference to the meeting of the Railroad Commission of Texas to which the major companies were invited and the agreement that apparently was reached there between the State authorities and the major companies.

Mr. HENDERSON. I can understand that, Mr. Crowley, because that is what was done in some cases, but that is an entirely different thing from what is done without benefit of State commissions. I can understand how that would come about through the compulsions of a strong State body. I am talking about the time when the pressure is not being exerted.

Mr. CROWLEY. Well, I don't know what they base it on. I heard one of the major witnesses testify the other day that there was nothing to this market-demand business; that he had worked out a market-demand figure several times and it was just a question of getting previous figures and calculating and making a guess as to about what the market demand would be, and at best it was a guess. But here is a case, Mr. Henderson, where they actually met and made an agreement about what would be done, if you would like me to read it to you.

Mr. HENDERSON. I think it is pertinent.

Mr. CROWLEY. The majors and independents all met with the railroad commission in December. The suggestions were made by the majors as to what they wanted done. This is page 23 of this statement.¹ The majors "intimated" what they would like to have done in order to keep up the price of crude. The commission followed the recommendations of the majors and no sooner had the recommendations of the majors been followed by the commission issuing its orders suspending hearings and ordering a continuation of the present plan of allowables, and a 2-day shut-down, than the majors themselves began to overload their refiners. Now the suggestions and recommendations of this group of majors are quoted here.

(1) That production of crude oil be held—

That is on page 22—

within the Bureau of Mines' recommendations, with a shut-down of two day per week.

(2) That the Railroad Commission of Texas announce its proration policy for a longer time than month by month, indicating that at least 90 days would be a desirable period for the Commission to use.

Assuming that the foregoing recommendations would be heeded, the majors suggested as the desired position of the industry on March 31, 1939.

(1) Let crude stocks remain approximately at the level that then existed but that with the commencement of the period of heavy consumption these stocks be gradually reduced.

(2) To place the refining operations upon a basis that would result in having about 82 millions of barrels of gasoline in storage on March 21.

Now at the last commission hearing of August 29, 1939, it was shown by the Humble Oil Co., the producing branch of the Standard's business—it is a subsidiary of the Standard of New Jersey—that they had an oil supply of about 12 days when the normal requirements of the business would be that, that they have a supply of 56 days and notwithstanding that they reduced the price of crude oil 20 cents a barrel, so supply and demand hasn't had a thing in the world to do with the increase or decrease of the price of crude oil.

¹ Appendix, p. 7603.

Mr. HENDERSON. I want to get back, Mr. Chairman, to the point I have been pursuing. During the days of this hearing the witnesses have been, to put it mildly, in juxtaposition to the majors, constantly intimating that there is collusion in ordinary times, or that there is a monopolistic practice of a very active sort directed toward independents and toward accomplishing some agreed-upon purpose.

This particular witness has shown that in a situation reported to be chaos, under State auspices certain recommendations were made which, as anybody knows, would affect supply and demand, and undertake to bring about a desired result. That was done under the code, as far as oil is concerned. It was done under several of the N. R. A. codes in order to affect the supply and demand, and it had, as I say, some benefit of clergy in the doing. Now, that may be a monopolistic practice under Government aegis, but where the complaint lies is as to this persistence of monopolistic practice on the part of the majors against the independents. I think it is important that you try to fix that. Otherwise the charge should not lie.

The CHAIRMAN. I think you are quite right.

Mr. HENDERSON. Now, Mr. Crowley, without being critical, you made some remark which has been made as long as I can remember as to who made this determination. You said, "Well, you have to go to 26 Broadway." Now, maybe you do. I want to be utterly frank; I would say there are times when I have suspected 26 Broadway of making determinations that were followed by the industry, but I think the committee is interested in this undertaking to find out what evidence does exist of that kind of an exercise of domination by the majors as against the rest of the field.

Mr. CROWLEY. Well, we do have something like 100 independent refineries, having been built in East Texas; we do have a price differential, being fixed by the major companies over there against the independent buyers of crude oil there; we do have these 100 plants, closed down and junked. We do have—those plants were built by men who were in the oil business, who had been in the oil business for generations, who wanted to stay in the oil business, and were driven out of the oil business by mere force of that coincidence of the squeeze. It is recognized as a squeeze by such independents as Charlie Roser; it is recognized as a squeeze. It does have the effect of a squeeze. It doesn't make any difference who puts the pinchers on. The effect is just the same. They go into bankruptcy.

Mr. HENDERSON. Well, you could have the squeeze which comes out of a set of conditions over which nobody had any control, or a set of conditions which were highly competitive, or a set of conditions which were definitely controlled. As I gather from your responses, you and others who have had considerable experience believe there is a deliberate policy?

Mr. CROWLEY. I don't think there is any doubt about it.

The CHAIRMAN. Now, what do you base that conclusion on? That is what Commissioner Henderson is trying to get at, and it is the thing in which the committee is interested.

Mr. CROWLEY. I base that conclusion on the fact that the major companies are the only buyers of crude oil; they are the only transporters of crude oil. That is, they fix the price of crude oil, being

the only buyers. They own the pipe lines, and naturally they fix the prices. I don't say that they meet around the table and agree beforehand what they are going to do. They have the American Petroleum Institute; they have their society of engineers and geologists; they can attend conventions and finally agree that this and that and the other thing is the best policy to pursue.

The CHAIRMAN. Now, if a representative of one of the majors should come here and should say, "The prices of crude oil are not fixed by agreement, nor are they fixed collusively; they are fixed by natural conditions, such as the isolation of the field from market; the expense of transporting the oil; the facilities which are available and so forth." What answer could I make to such a person?

Mr. CROWLEY. I don't know, Senator. It would depend on the particular case but they were exactly the same alibis that were furnished to the Supreme Court of the United States in the case of the United States against the Standard Oil Co. of New Jersey in 1911.

The CHAIRMAN. Of course, the contention is always made that the results are the outcome of natural conditions, but nevertheless when this committee comes to study the evidence that has been presented here, it cannot rely upon belief. It must have some fact. Now a moment ago you were talking about the price of crude oil at Van and the price at East Texas. If I remember correctly, you said that at Van the price was much lower than it was in the East Texas field; is that correct?

Mr. CROWLEY. Yes; based on gravity, that is right.

The CHAIRMAN. Now, when you say based on gravity, you mean that there was a different kind of crude produced in the two fields?

Mr. CROWLEY. Yes; it was 34 gravity, in East Texas, 37. The price in East Texas was \$1.10 and the price of Van was 93 cents, but reducing them to the common gravity, the price of Van would be 99 cents against \$1.10 for Van.

The CHAIRMAN. \$1.10 for East Texas?

Mr. CROWLEY. \$1.10 for East Texas, making a differential of 11 cents against the buyer of East Texas crude. The buyer of East Texas crude couldn't get Van crude because there was none for sale.

The CHAIRMAN. Why was none for sale?

Mr. CROWLEY. It was all owned by the Pure Oil Co.

The CHAIRMAN. And was the Pure Oil Co. a purchaser in the East Texas field, too?

Mr. CROWLEY. Along with some others, yes.

The CHAIRMAN. Was the Pure Oil Co. a producer in the Van field?

Mr. CROWLEY. Yes, sir.

The CHAIRMAN. Was it an exclusive producer?

Mr. CROWLEY. I think it owned practically the whole field.

The CHAIRMAN. Were there any independent producers there?

Mr. CROWLEY. No independents operated there.

The CHAIRMAN. So there was no possibility of an independent refiner at East Texas getting the Van crude unless the Pure Oil would be willing to sell it to them?

Mr. CROWLEY. That is right.

The CHAIRMAN. But there was a difference in the gravity of the two oils?

Mr. CROWLEY. Yes; some difference.

The CHAIRMAN. And was that difference of gravity such as to justify the differential which you have figured out?

Mr. CROWLEY. Of course not. The difference in price was 93 cents for Van crude, and \$1.10 for East Texas, but to be fair about this thing, I reduced it to the common gravity and it would be figured at 99 cents for Van crude and \$1.10 for East Texas.

The CHAIRMAN. How far distant were these fields?

Mr. CROWLEY. About 40 miles—40 or 50 miles.

The CHAIRMAN. So that within an area of 40 miles, oil which differed in gravity only about three degrees was selling at a differential of 11 cents a barrel?

Mr. CROWLEY. Seventeen cents.

The CHAIRMAN. I am taking the 11 cents which you had on this page.

Mr. CROWLEY. Eleven cents is after it is reduced to the common gravity. The actual difference was 17 cents.

The CHAIRMAN. Without the compensatory figure, the difference was 17 cents?

Mr. CROWLEY. Yes, sir.

The CHAIRMAN. Was the Van field any easier of access to the market than the East Texas field?

Mr. CROWLEY. Not at all.

The CHAIRMAN. Was there any circumstance at all, to your knowledge, that would justify this very much lower price for Van than for East Texas?

Mr. CROWLEY. Not at all.

The CHAIRMAN. Is it on that difference that you base your contention that the price of crude oil in the East Texas field was unnecessarily high?

Mr. CROWLEY. Well, partly; yes, sir.

The CHAIRMAN. On what other consideration?

Mr. CROWLEY. I think it is very evident from the difference in the allowable per well and the existence of independent refiners over there and that the majors didn't want that independent competition.

The CHAIRMAN. Was any argument of this kind made to the Texas commission?

Mr. CROWLEY. Repeatedly.

The CHAIRMAN. Could the Texas commission have made available crude oil in the East Texas field to the refiners—

Mr. CROWLEY (interposing). No, sir. In the East Texas field?

The CHAIRMAN. Yes.

Mr. CROWLEY. It could have made an allowable for the whole field, but you see the majors had so much of it tied up that if you would have increased the allowable in order to furnish we will say the East Texas Refining Co. with 5,000 barrels a day, that might have made the allowable from its own wells—that would have made the allowable from the entire field so high that it would have destroyed the price structure and it might have created physical waste so far as that goes.

The CHAIRMAN. So the Texas Railroad Commission was confronted with the problem as to whether or not it would endanger the price structure or close out the independents.

Mr. CROWLEY. Yes; it amounted to that, I suppose. The Railroad commission has always been confronted with price structure and they have considered little else. I have filed with the committee here excerpts from the Commission's hearings, held month by month, showing, "What we can do to keep the price up," and the suggestions made that "If there is too much oil allowed from this or that or the other field, we will be compelled to withdraw some of our connections, and we can't take your oil and we will have to reduce the price."

The CHAIRMAN. Now, Mr. Crowley, there are, it seems, at least four primary interests in the petroleum industry. There is the interest of the producer, No. 1; the interest of the refiner, No. 2; the interest of the distributor, No. 3; and finally, No. 4, the interests of the consumer. So that these four interests must be balanced one against the other and it is quite obvious that any set of circumstances that tends to increase price for the producer or the refiner tends also to increase price for the consumer and maybe to decrease profit for the distributor.

Now, if there is control in the industry—and of course since you have the proration laws and your State commissions, there is a certain amount of Government control, at least in the production; the State commissions, together with the oil compacts among the States, and finally the Connally Act—do you take the position that there is some other system than that which is now in vogue which will operate more equitably and justly to these four interests than the one now in operation?

Mr. CROWLEY. Yes, sir; I do.

The CHAIRMAN. What is your suggestion along that line?

Mr. CROWLEY. Do you mind before I answer that, if I touch on the question of pipe lines first?

The CHAIRMAN. Certainly; go ahead.

Mr. CROWLEY. One of the worst things about the whole business is the control of the transportation facilities by the major companies. They can and do use these profits which are inordinately if not unconscionably high to cushion or make up the losses they make in other branches of the industry. I make that statement, and the records bear me out in that.

I have some figures quoted in this report here which show some of the profits made by these companies that I took from the Interstate Commerce Commission's own reports. With 16 pipe-line companies belonging to the integrated companies, profits from their operations over a period of 7 to 9 years averaged about 45 percent, I think. I wouldn't want you to depend on these figures entirely because Mr. Cox has them accurately in some of the exhibits that have been filed. I did this myself so I am not certain about the exact proportions. But they have made extremely high profits on their pipe lines. We will take the Shell Oil Co., the Shell Pipeline Co., as an example. This is not only a European corporation that is a part of this same monopoly, but it is enjoying the same benefits here that a full-fledged American institution would. Six million six hundred and forty-nine thousand dollars was the capital stock in 1936. This pipe-line company made a profit during 9 years of \$100,050,000, a profit of 166 percent per annum average throughout this entire period. These profits range here from various percentages to as high as 16,000 percent in

1 year. We have the Great Lakes Pipeline Co. with a capital stock of $4\frac{1}{2}$ million dollars. Of course they borrowed money to aid in building this pipe line. It paid total dividends of \$13,360,000. You say, "How does this affect the producer, how does it affect the refiner?" It affects him a great deal. There was an exhibit filed with the testimony of Mr. Walsh this morning. It was not called attention to, I suppose, because he is not particularly trying to operate in sending his products to the North and the East by rail, but I have a copy of that, and it is a simple illustration of another squeeze that is put on the independent, wherever he is, who does not have access to pipe lines.

In shipping oil and gasoline from north Texas points to Kansas City, there is a differential there in favor of the pipe line company over the independent producer of 70 cents for each 42-gallon barrel. The independent shipping his gasoline up to those points uses train. If the gasoline is carried by these pipe-line companies, there is a differential there of 70 cents a barrel. This goes as high as \$1 or more. But if it averages 2 cents a gallon, then you can see why the owner of the pipe line has such advantages over the shipper who has to use the railroads.

This practice has been outlawed by the Hepburn Act in principle although from a technical standpoint maybe it does not outlaw the rebating engaged in by the pipe-line companies by paying out dividends to their parent company. I have an article here in *Fortune Magazine* about the Continental Oil Co., one of the Morgan companies and showing that their losses in other branches of the industry have been more than offset by their profits paid by the pipe-line companies. They could lose money on production, refining, and marketing, these branches of the industry in which they have competition, and still pay their dividends here with profits out of the pipe-line companies where they have no competition.

MR. HENDERSON. Do you mind, Mr. Crowley, developing the Hepburn Act a little bit? I don't believe that all of the committee are familiar with what the Hepburn Act was intended to outlaw and might not catch the analogy you are making.

MR. CROWLEY. That was to prevent rebates from the shipper-owners.

THE CHAIRMAN. The railroads?

MR. CROWLEY. Yes; the railroads. To give an illustration of how this thing might work, here is the Shell Co. with its profits of \$100,000,000 in 9 years; that is, \$11,000,000 a year. They come out here and this year, July 1, announce they are borrowing \$85,000,000 of American money through J. P. Morgan & Co.; at $2\frac{1}{2}$ percent, on 15-year debentures. Their profits on their pipe lines will amortize this debt, assuming that they will keep on at the same rate they are going. But the independent not only can't get these advantages of the pipe line ownership and profits, but he can't borrow any money for 15 years. He has got to depend upon hand-to-mouth existence, short-term loans, high rates of interest, and be very careful about how he operates at that. The pipe-line control enables the major companies unquestionably to have an advantage that they ought not to enjoy. Pipe-line divorcement was recommended by the Federal Trade Commission many years ago; it was recommended by inference

by the Interstate Commerce Commission in 1906, I think. I will not take time to refer to that. It was recommended again by President Roosevelt in his message to Congress in 1933. It has been recommended by every governmental agency and economist that has ever made a report upon the subject, with one exception, and that was Dr. Splawn.¹ Dr. Splawn published the pipe-line report, and the major companies have hidden behind that report ever since the day it was published. They say that Dr. Splawn says this and Dr. Splawn says that. He thought that they ought not to be divorced. Dr. Splawn made a speech in Abilene, Tex., a few months ago, talking about building of local industries and factories to consume the raw materials of the country there, how it would build communities, and so forth, and develop the country. I wrote to him and asked him if he didn't think a refinery was a manufacturing industry that ought to be encouraged to locate closest to the source of raw materials and distribution and the customers. I have great respect for Dr. Splawn, and we are friends, and I told him frankly: "Every time I hear an alibi of a major company they are quoting Dr. Splawn, who says the pipe lines are a plant facility, and it is this sort of plant facility that you wrote this report about that has kept cities around the oil fields from growing, becoming much more prosperous. Their oil is piped away instead of being refined at Longview, for instance, and thousands of men thrown out on the street."

I don't suppose Dr. Splawn would mind my quoting a couple of sentences out of this letter, because I think he has seen the light. This is May 29, 1939 [reading]:

Of course, the report to which you refer speaks for itself. I have never thought it supported some of the arguments which have been put forward by representatives of various groups. This, though, is a free country in which views are published whether they be logical or illogical, well or ill founded. You and I would not have it otherwise. The whole question of private transportation by corporations manufacturing goods to be transported is shaping up as most perplexing

and it is true; it is shaping up as most perplexing.

The CHAIRMAN. Returning to the question which I propounded a few moments ago, what I am curious to know is what your opinion is with respect to the cause of the conditions which you have been describing and which are described by others. Do you attribute the difficulties which the independent has to struggle against to active, collusive planning by the majors, or do you attribute it to the fact that the majors are integrated companies which have not only great producing interests and great refining interests, but also these very successful transportation interests which you have just described? In other words, is the condition which causes so much complaint a result of a policy by private interests which is actively antisocial or is it a result of the fact that the integration of these great companies in all of the fields, or all of the departments of the industry, has been permitted?

Mr. CROWLEY. Well, it may be more the system than national planning, although I don't think there is a doubt but that common understandings are arrived at by the companies in their various operations.

¹ Dr. W. M. W. Splawn, Interstate Commerce Commissioner.

The CHAIRMAN. You see, the word "monopoly" is used in so many different senses, we are constantly struggling with that. There are monopolies which are perfectly legal and there are monopolies which are natural, that can't be avoided, monopolies which are set up by operation of law; but the monopoly against which public sentiment rises is the monopoly which is the result of active combination among interests that if they didn't make this combination would not possess the advantageous position of control which they do possess by reason of the combination.

When you speak of monopoly in the petroleum industry, just what do you mean?

Mr. CROWLEY. I mean that the power is possessed by the integrated companies to control prices of the raw material, the manufacture of it, and the distribution to the public.

The CHAIRMAN. Is that, in your opinion, an inevitable result of their size and of the great power they possess because they are integrated, or is it a result of active arrangement, agreement among them?

Mr. CROWLEY. I think it is possibly both—possibly both.

The CHAIRMAN. Now the committee would be delighted to have specific instances to substantiate that opinion.

Mr. CROWLEY. They do not have detailed agreements covering all their undertakings, but they have identical and common practices that have all the force and effect of written agreements and are just as destructive to the small competitor. When the price is posted by one, the others immediately follow. When a practice of one kind or another is engaged in, the majors all engage in it. They right now plan for the unitization of oil fields, for the development of an oil field as a unit; compulsory pooling arrangements that you were inquiring about this morning. That is the next step, so that if it happens that you own a piece of land within that pool, there will be some governing authority under their political dominion and control to tell you whether you can drill your well on it or whether you can't. The so-called equitable withdrawal from a so-called common pool, that is their unquestioned objective right now.

They have such a law in Arkansas; they have such a law in New Mexico, and in Michigan, to provide for compulsory pooling. They are trying to pass laws giving commissions power to guess at the approximate amount of oil that may be under your land and determine then how much you will be permitted to withdraw from that land.

The CHAIRMAN. Do you criticize or do you support public control of production? Let's confine ourselves to that field.

Mr. CROWLEY. I certainly do not.

The CHAIRMAN. You do not believe that the proration laws should be permitted to stand?

Mr. CROWLEY. Oh, yes. I am for the proration laws, but I think that they have gradually got to be worked back to where they are administered on the basis of engineering principles to prevent physical waste, and only physical waste, and not administered to fix prices.

The CHAIRMAN. How would you do that, Mr. Crowley?

Mr. CROWLEY. I don't know how you would do that. I think we have no physical waste of oil in Texas today. I think it would be

disastrous to withdraw the protection of prices right at this time by the abandonment of proration laws. I think it would be hard to do, but I think we ought to come back to this question of fair competition. I think the pipe lines ought to be divorced. I don't think you can make oil a public utility. It can't be done at all. I don't think that we ought to permit combinations of an integrated industry to operate so that one may be allowed to make great profits to bolster up losses in another field where they have competition, as is being done with reference to the pipe lines.

I think that there can be disintegration of the companies without harmful effects, but, on the other hand, with tremendous and great benefits to the people of the country and to the oil business itself.

The CHAIRMAN. Now, it is perfectly obvious with respect to proration that it works inequitably upon the small owner of oil land. A farmer, for example, who has, let us say for the purposes of the question, 10 or 12 or 14 acres of land in a big field, under a proration system, would frequently be permitted to bring out so small a quantity of oil that he would not begin to derive the profit from his land which he might have derived when there was no proration. Isn't that right?

Mr. CROWLEY. That is right. That is where utilization of the field would apply also.

The CHAIRMAN. And unitization would have the same effect upon the small man.

Mr. CROWLEY. That is right.

The CHAIRMAN. And the producer who either by ownership or by lease, or otherwise, had acquired a larger area could more easily stand the proration than the little fellow, isn't that right?

Mr. CROWLEY. That is right. The larger company has lots of reserves; they can draw on other areas.

The CHAIRMAN. And the independent refiner, likewise, is at a disadvantage when he has no sources of crude under his own control on which he can depend, but must obtain that crude from other sources. Is that correct?

Mr. CROWLEY. That is correct.

The CHAIRMAN. Now is there any way by which the independent refiner could be protected in receiving a supply from the independent producer?

Mr. CROWLEY. Well, if you have free competition the chances are that he will get a supply of crude oil from the independent producer, but where his transportation means are cut off, or where there is control of an oil field by this unitization plan, where there are such restrictions as retard the free flow of oil in commerce, then the independent refiner can't get it.

The CHAIRMAN. As a matter of fact, the pipe line stands between the independent producer and the independent refiner, does it not?

Mr. CROWLEY. It does; indeed it does.

The CHAIRMAN. Because it is difficult if not impossible for the independent producer or refiner to obtain access to the pipe line.

Mr. CROWLEY. That is correct.

The CHAIRMAN. Do you have any suggestion in that regard? I suppose your suggestion of divorcement would tend to cover that?

Mr. CROWLEY. I think if the pipe line is divorced you will have many more small refineries operating in the oil sections competing

with the majors, and they will be buying oil from the independent producers, and it will tend to boost the price of crude oil.

The CHAIRMAN. What would be the effect upon the price of gasoline to the consumer?

Mr. CROWLEY. It ought to be a good deal less. I have shown you where they have a differential right here today. These figures I read about these gasoline pipe-line cases from North Texas to Minneapolis, St. Paul, St. Louis, Kansas City, and so forth, show exactly a 2-cent charge against the independents, or a 2-cent differential in favor of the major that is never passed on to the consumer. The independent refiner having a small unit to operate where he can devote personal attention to it can operate more efficiently than the big company. He hasn't got the overhead; and he is doing it in Texas—where he can survive at all, he is selling gasoline, and good gasoline, much cheaper than the major companies sell it.

The CHAIRMAN. Do you have anything else, Mr. Crowley?

Mr. CROWLEY. No.

Mr. BALLINGER. Mr. Crowley, you said you were in favor of proration; you are not in favor of the way it is administered, but you are in favor of the theory of proration. Did you say that?

Mr. CROWLEY. Well, I think that we have got to tolerate proration whether we are in favor of it or not, because if you do away with proration and allow the wells even to flow as much as they can produce without waste, you nevertheless would create such a great supply of oil—there would be such a great supply of oil on hand—that prices would be depressed too low.

Mr. BALLINGER. Well, do you think that there is any way that an equitable system of proration could possibly be worked out?

Mr. CROWLEY. I haven't any definite ideas on the thing. Of course, I think that the law of supply and demand will right the situation if we can have the law of supply and demand actually put into effect.

Mr. BALLINGER. The theory of overproduction in oil is true of many other industries. Do you want them all to have proration schemes?

Mr. CROWLEY. No, sir; I don't. I am against price control, price fixing, regimentation, or anything of the kind. I am for the good old American system that T. Jefferson once talked about.

Representative WILLIAMS. I was just wondering, Mr. Crowley—you mentioned an equitable withdrawal of oil from the pool by the various landowners. What have you in mind with reference to that?

Mr. CROWLEY. I think that is a fallacious idea. I think it is a plan of monopoly. I don't think it is sound, I don't think there is anything good about it. I think it is guesswork from beginning to end. You can find an oil well here in one spot and an offset will give you a dry hole. There are very, very few oil pools that are in truth and in fact common pools. East Texas might be called one because of the peculiar sand conditions, but for the most part you will find wells in the same field producing from different sands offsetting each other. I don't think there is a man living who can estimate with any degree of accuracy the amount of oil under the ground under any given tract of land, and nothing but the drill and actual test will determine the presence and amount of oil.

The CHAIRMAN. That has frequently been demonstrated by exploration, has it not, field after field having been brought in after it had been condemned by the best experts in the business?

Mr. CROWLEY. Yes, indeed; that is right. Now the evil effect of such a thing as that, that is the one thing that ought to be fought off, is that if a large company has, in an area supposed to be an oil field, a large tract of land it could insist upon withdrawing, say, a thousand barrels, where if the little fellow had 10 acres of land they might give him 10 barrels, so that he could not afford to drill a well and compete with the producer of the thousand barrels from the larger tract of land.

The CHAIRMAN. Has it ever been suggested or practiced in any of these proration policies that the small owner should have a larger proportion of his oil than the large owner?

Mr. CROWLEY. No.

The CHAIRMAN. Is it always based upon acreage, solely?

Mr. CROWLEY. No; it isn't based on acreage; it shouldn't be based on acreage. There is no fair way to determine basing it upon acreage.

The CHAIRMAN. What factors are used in Texas?

Mr. CROWLEY. Well, the ancient rule of capture has always determined—

The CHAIRMAN (interposing). I mean in forcing proration.

Mr. CROWLEY. They base it on the well, per well basis. They allow so much per well; except, I think, in the Yates pool, where there is an agreed unit of operation out there. I think the Yates pool is a unit.

Representative WILLIAMS. We had an example of a case here yesterday, as I understood Mr. Dailey, where they wouldn't give him a permit to drill a well on his land.

Mr. CROWLEY. Yes; I heard some of that testimony. I don't know a thing about the facts except what was developed here, but there is where it would be put into effect. A man has 20 acres of land that he owns in fee; if the governing authorities were persuaded to make 40 acres the unit he couldn't drill a well without joining somebody else; or if it made 100 acres the unit, he would have to put his tract in with somebody and get a fifth of the production.

Representative WILLIAMS. Did I understand you to say that Arkansas had passed an equitable-withdrawal law of some kind?

Mr. CROWLEY. They have got a law that is just like the New Mexico law, providing for compulsory pooling, compulsory unitization, and I discussed that matter in the statement that I have filed here with the committee.

Representative WILLIAMS. Do you favor that kind of law?

Mr. CROWLEY. I certainly do not. I think it would put the independent producer absolutely at the mercy of the big company.

Mr. Cox. Are those Arkansas and New Mexico laws you have been speaking of at all similar to the regulation that was involved in the case of Thompson against the Consolidated Gas Co.?

Mr. CROWLEY. No; they are different. The Thompson against Consolidated Gas Co. was a ratable taking of gas from each well in that area. Compulsory unitization is the control of the land.

Mr. BALLINGER. Mr. Crowley, I want to try to get a little bit more of this proration idea. Your theory of proration is that it is all

right if it will insure a living to all existing oil producers. Is that it? You want to work it out equitably so everybody will stay in the picture. Is that it?

Mr. CROWLEY. Well, I am not a very strong proponent of proration, but I think that we have got it and we have got to keep it until the supply of oil begins to diminish, and it doesn't look like that is any time soon.

Mr. BALLINGER. Your kick against the present system is that it squeezes out the little fellow, so the inference is your kick would cease if it didn't squeeze out the little fellow.

Mr. CROWLEY. That is probably right. We cannot say that proration except to prevent physical waste is fundamentally right unless we are going to believe in regimentation and price-fixing and control of an industry by Government. I think if you will let the little fellow run his business and protect him against monopoly, the old law of supply and demand will take care of the regulation of business—I mean of prices.

Mr. BALLINGER. But on proration you don't have that good old law of supply and demand.

Mr. CROWLEY. That is so, but we have been taking "dope" in the oil business. We have had to have price fixing.

Mr. BALLINGER. If you have to have them at the producing end, why shouldn't the refiner say: "We want a proration scheme; we want something that will guarantee our existence?" And why shouldn't the filling-station operators say they want something?

Mr. CROWLEY. I am not talking about guaranteeing anybody anything; but I say if you withdraw proration, the price will go down, because everybody will want to produce all the oil they can. There is Illinois today—for some strange reason the monopoly has not been able to convince the people there they ought to be managed and regulated, and they are producing the oil and selling it and doing fine; and the Texas producers, incidentally, are going up there in droves and drilling oil wells.

Mr. BALLINGER. Didn't it happen in California when they repealed the Petroleum Code, everybody predicted the direst things would happen in the California oil business and everybody would be ruined, and no such thing happened?

Mr. CROWLEY. That is right; it didn't happen. It might not happen if we did away with proration.

Mr. BALLINGER. But you can't have your cake and eat it.

Mr. CROWLEY. I am not arguing for proration, because I was against it when it was fastened onto us, and I have seen it used to manage and juggle us around just as they wanted to do to us, and I am not trying to uphold the price-fixing thing at all. I don't think it works. I don't think it is right.

Mr. BALLINGER. You would want proration, then, to conserve the oil.

Mr. CROWLEY. Proration should only be administered to conserve the oil.

Mr. BALLINGER. And of course, we don't know how much oil we have. I mean, every time we are running out; we always get more.

Mr. CROWLEY. Well, of course the experts now concede unlimited supplies of oil. I was just reading the report of a major company economist or geologist or engineer the other day, Mr. Delbridge, of

the Atlantic Petroleum Company, estimating the supply of oil. He made a very interesting speech in which he estimates the oil supply will last 150 years. We don't know how much oil we have. We have plenty.

Mr. O'CONNELL. Mr. Crowley, in answer to a question by the chairman, I understood you to suggest that the conditions in the oil industry of which you complain may be caused in part by agreement between the major companies and in part by the development of the integrated company assets without agreement. That would suggest to me that it is your belief that problems of concentration and control or monopoly might be of interest to the Government whether they result from agreement between competitors or whether they are a result of just a natural evolutionary process. Would that be a fair statement of what you believe?

Mr. CROWLEY. Yes, sir.

Mr. O'CONNELL. Would it follow from that that it is your belief that the existing concept of the antitrust laws, which is primarily based upon agreement between competitors, is inadequate to deal with the situation in the oil industry?

Mr. CROWLEY. Well, I won't say that. I think the antitrust laws ought to be enforced.

Mr. O'CONNELL. I agree.

Mr. CROWLEY. And I think there is a case against the major companies now for violation of the antitrust laws, and I think the suit ought to be brought, but I think, in addition to that, that Congress ought to enact legislation that would prevent a recurrence of the present conditions. It takes so much time and it takes a tremendous amount of money to prepare an antitrust case; we know that without being on the inside. There ought to be some rules laid down that would prevent this thing being and recurring. We have had a solution of the meat monopoly problem in the packing-house cases, where there was divorcement of the retail outlets by the packers; and we have had it in the divorcement of the coal business from the railroads, and calamity didn't fall upon us. There is no particular reason why we can't have protective laws for future guidance in the oil business by divorcement of the pipe lines.

Mr. O'CONNELL. I had no thought of questioning the propriety of the antitrust laws, but it seemed to me from what you said about the condition arising in part possibly because agreement in part is the result of so-called natural forces, it might be that you thought the antitrust laws were inadequate in and of themselves to deal with the existing situation. I take it you would believe that antitrust prosecutions plus something else would be needed to rectify the situation in the oil industry.

Mr. CROWLEY. I think we ought to avoid this thing coming up constantly. Every few years, every 10 or 15 years, or oftener, the oil business, the oil monopoly, is investigated by somebody in the Government, and it keeps coming up. The question of rebates in the railroads was before Congress all the time until they settled it, until they did something about it that definitely cured it, and I think that can be done in the oil business. There is not any reason why mining, transportation, manufacturing, and merchandising—that is what their integrated system means—are necessary to each other, and it

certainly does indicate, by reason of their very existence, a monopolistic control, whether reached by agreement or just because of the way the business is operated.

Mr. Cox. Mr. Crowley, you said a moment ago you thought that there was a basis now for a suit under the antitrust laws against the major oil companies. Do you mean a suit which proceeds on the theory that they have been buying and conspired to fix prices, or a suit that aims at divorcing some of their properties from them?

Mr. CROWLEY. Well, I think on the order of the picture-show suit. I believe you did have contracts in that, but I have in mind a suit for the divorcement of these branches of the industry that resulted in the monopoly.

Mr. Cox. I take it, it is clear from what you say, that you believe in divorcement of pipe lines. As I read the Transportation Act of 1920, the pipe lines are now common carriers. Is that your interpretation of that statute?

Mr. CROWLEY. I didn't understand that.

Mr. Cox. Will you read the question.

(The reporter read the question.)

Mr. CROWLEY. Yes, sir.

Mr. Cox. And as such common carriers their rates are subject to regulation by the Interstate Commerce Commission and they are required to take oil regularly from all persons who offer to them, as I understand the law. That being so, the suggestion has been made to the committee here that those circumstances make it unnecessary to divorce the pipe lines. Have you anything to say about that?

Mr. CROWLEY. Well, the way it works out—I am not a rate expert, but we know that the rates are first published by the pipe-line companies and that if they are not challenged within a certain length of time they go into effect, and it means a long drawn-out, bitter controversy and an expensive contest and many small shippers can't contest an unfair rate for a lot of reasons. One is money—the expense; and the other is that he doesn't dare get into a controversy with the major company because there is not one independent that can't be squeezed and thrown out of business somewhere if they get down on him.

A proceeding before the Interstate Commerce Commission is not an effective remedy. There isn't any reason for having an unfair rate to be established that oughtn't to have been allowed in the first place to go into effect until challenged by some weak little defenseless individual or little corporation before this Commission. These things that are wrong to start with ought to be forbidden by Congress.

Mr. Cox. Was it your opinion, then, that whatever they may be called in the statute, pipe lines in fact are not common carriers as they are operated today?

Mr. CROWLEY. The facts show that. I think I can prove it to you with one illustration. If the pipe lines were truly common carriers, then why do all the major integrated companies jointly own the Great Lakes gasoline pipe line? That answers the question itself. If it was a common-carrier line, they would all use it and pay the usual tariffs. It is not a common carrier, so they all use it and

receive their rebates in the form of dividends. And the independent who tries to ship through the line, of course—well, he just doesn't do it because he cannot.

Mr. Cox. It has also been suggested here if you divorce the pipe line and prohibit the major integrated companies from owning the pipe lines, it would be difficult to find anyone who will be willing to invest capital to build pipe lines into new oil fields. Have you any comments to make on that?

Mr. CROWLEY. I don't think there is a thing in the world to that. I think the same rule that applies to the railroads would apply to the pipe lines. It always has in the past. I remember when the first fields were opened up around 1919 and '20 in Texas, tremendous amounts of oil were carried by little gathering lines to the railroad and shipped by railroad, and there will be a transportation means found if oil is there to be carried. That just comes as a matter of course. It is elementary, I think. Wherever there is a need for that oil there will be a way found to get it to the market; and there is a cheaper form of transportation by rail, according to Commissioner Eastman, than the pipe lines.

You might say, if the pipe lines were divorced, who would buy them? Well, the coal mines and the railroads were divorced, and somebody bought the railroads. The packing houses were divorced from their retail outlets, and the retail outlets are running, owned by somebody else.

The CHAIRMAN. Mr. Crowley, you have studied the prices of crude oil in the whole State of Texas, have you not?

Mr. CROWLEY. Yes; I have.

The CHAIRMAN. Have you made any effort to schedule these prices on the basis of fields which are controlled by the major companies and fields in which independent producers operate?

Mr. CROWLEY. No, sir; I haven't. The major companies have gotten control of most of the fields; the biggest part of the production in nearly all the fields outside of East Texas.

The CHAIRMAN. Well, the charge is sometimes made that the price of oil, of crude oil, is low in those fields which are—I mean is relatively high in those fields in which the independent operators operate.

Mr. CROWLEY. Independent refiners, you mean?

The CHAIRMAN. Yes.

Mr. CROWLEY. Well, that is undoubtedly true in East Texas.

The CHAIRMAN. And low where they do not?

Mr. CROWLEY. Yes; that is true.

The CHAIRMAN. Now, it has also been charged that quite the reverse is true with respect to crude oil. That where the independents appear, the price tends to go down; but where there are no independents, then the price tends to be higher. Is there any basis for that?

Mr. CROWLEY. No; I don't think so. All the fields have a few independents in them, and some of the fields are owned almost as a unit or controlled as a unit, such as the Yates pool and the Van pool in East Texas, but the prices undoubtedly are higher where there is independent refinery competition than they are in those fields where the major companies have complete monopoly and are the exclusive purchasers of crude oil.

The CHAIRMAN. Well, your suggestion to the committee is that there ought to be a pipe-line divorcement; that although you don't like proration, it is here and must be reckoned with.

Mr. CROWLEY. Yes; I think we have to get away from it, get away from it gradually, and get back to quit trying to fix prices for everything in the country; it just won't work; might as well try to dam up the Mississippi River and tell it not to flow as to keep the natural laws of supply and demand from operating, unless you want to change the whole system of government that we are operating under. But if it has to be done, if prices have to be made and have to be fixed by somebody, let it be the States or the United States of America instead of the major companies, as they are at present.

You can't make a public utility out of the oil business; when you do you stop the independent from going on and discovering the new fields, and when you put the oil business under Federal regulation, such as is proposed over in the House, you are going to find that the little fellow will quit the oil business because he can't afford to come to Washington to get his permits, to do business, and he can't afford to engage in the contest that he will have to engage in with his major competitors who can maintain representatives right here in the city at all times. Just give us some fair and free competition. That is all that the little fellow in the oil business ought to want. It is all I think that he does want.

The CHAIRMAN. Are there any other questions? If not, Mr. Crowley, we are very much indebted to you. We thank you very much for your presentation. It is now 4:30; what is the desire of the committee? The next witness I understood was Mr. DeGolyer, was it not, and Colonel Thompson, both of whom I think desire to be heard this week, do they not? What is the will of the committee?

Representative WILLIAMS. We can't possibly hear them both this afternoon without staying here all night.

The CHAIRMAN. What can we do about tomorrow?

(Conference off the record.)

The CHAIRMAN. The committee will stand in recess until 10:30 tomorrow morning.

(Whereupon, at 4:30 p. m., the committee recessed until 10:30 the following morning.)

INVESTIGATION OF CONCENTRATION OF ECONOMIC POWER

SATURDAY, SEPTEMBER 30, 1939

UNITED STATES SENATE,
TEMPORARY NATIONAL ECONOMIC COMMITTEE,
Washington, D. C.

The committee met at 10:40 a. m., pursuant to adjournment of Friday, September 29, 1939, in the Caucus Room, Senate Office Building, Senator Joseph C. O'Mahoney, presiding.

Present: Senator O'Mahoney (chairman), Representatives Reece and Williams, Messrs. O'Connell and Brackett.

Present also: Clarence Avildsen, representing the Department of Commerce; Quinn Shaughnessy, representing the Securities and Exchange Commission; Hugh Cox, W. B. Watson Snyder, F. E. Berquist, Christopher Del Sesto, special assistants to the Attorney General; Leo Finn and Roy C. Cook, Department of Justice.

The CHAIRMAN. The committee will please come to order. Is Mr. DeGolyer present?

Mr. DEGOLYER. Yes, sir.

The CHAIRMAN. Do you solemnly swear that the testimony you are about to give in this proceedings shall be the truth, the whole truth, and nothing but the truth, so help you God?

Mr. DEGOLYER. I do.

The CHAIRMAN. You may be seated.

TESTIMONY OF E. DEGOLYER, DALLAS, TEX.

The CHAIRMAN. Will you be good enough to give your full name and your connections to the reporter, please?

Mr. DEGOLYER. My name is E. DeGolyer, of Dallas, Tex. I am an independent petroleum producer, geologist, and petroleum engineer. I was formerly a member of the United States Geological Survey, left here some 30 years ago to become a geologist for the Mexican Eagle. That was my entry into the oil business. I left the Mexican Eagle about 20 years ago and was one of the organizers and managers of the Amerada Corporation.

The CHAIRMAN. What corporation was that?

Mr. DEGOLYER. The Amerada Corporation, one of the small producing oil companies.

The CHAIRMAN. In Texas?

Mr. DEGOLYER. It operates in Oklahoma and Texas, generally in Midcontinent and California.

I resigned from the Amerada about 7 years ago in order to go into the production of oil and consulting work.

The CHAIRMAN. Do you mean individually, or through some corporation?

Mr. DeGOLYER. Well, generally through corporations which I either own entirely myself or in which I have a very substantial interest.

I have been very much interested in the oil industry as a matter of study for a number of years.

Representative REECE. Is your interest in the production of oil altogether?

Mr. DeGOLYER. I am a past president of the Association of Petroleum Geologists and also the American Institute of Mining and Metallurgical Engineers. I was technical adviser to the N. R. A. in the formation of the Petroleum Code, and have been since that time a member of the economic advisory committee of the Interstate Oil Compact. I appear before you at your invitation but also upon the nomination of the American Petroleum Institute of which I am also a director.

The CHAIRMAN. Have you done geological work for other corporations than those which you have mentioned?

Mr. DeGOLYER. Oh, very seldom. I have done a good deal of work in appraisal engineering for many corporations, but I don't think I have done a great deal of geological work outside of the companies by which I was employed or the companies in which I was interested.

The CHAIRMAN. Would it be proper to characterize your experience as that of an independent who has not been associated with the major companies, so-called?

Mr. DeGOLYER. I shouldn't say so. I think probably in my 30 years I have had a pretty fair cross-section, since my earliest experience was with the Mexican Eagle, which was a large integrated company operating entirely in Mexico. The control passed about 1920 in that company to the Dutch Shell group, and shortly after that I resigned from the company. The Amerada Corporation was organized and operated as an independent, started from the ground up—that is, built itself into a producing position—and it is strictly a producing company. The enterprises in which I have engaged for myself are strictly producing enterprises.

The CHAIRMAN. And independent?

Mr. DeGOLYER. Independent; yes.

The CHAIRMAN. Very well, Mr. DeGolyer.

Mr. DeGOLYER. The statement which I have prepared and which was submitted some time ago, has been in the hands of your committee, and I assume in the interest of time it will be as agreeable to you if I try perhaps to accent those things which seem more important to me rather than to go through the entire statement. I will be glad to follow such procedure as you desire.

The CHAIRMAN. I think perhaps it would be well to follow the procedure we have followed. Your full statement will be placed in the record and you may emphasize such parts of it as you desire.

(Mr. DeGolyer's printed statement was marked "Exhibit No. 1183" and is included in the appendix on p. 7662.)

OIL PRODUCTION

Mr. DeGOLYER. In the first place, I desire to speak to some extent on the magnitude of the producing branch of the industry.

More than 3,000 separate pools of oil and gas have been discovered in the United States since the beginning of the industry in 1859. They range in size from the mammoth East Texas pool, with an estimated ultimate production of approximately $3\frac{1}{2}$ billion barrels of oil or 10 percent of the estimated total past production and proved reserves of the United States, to scores if not hundreds of 1-well pools which have produced only a few thousand barrels of oil.

I might correct this at the moment by saying that the best engineering estimates for the size of the East Texas pool at the present time, and estimates which have become available to me since this statement was originally prepared, indicate an ultimate production of about 5 billion barrels rather than $3\frac{1}{2}$ billion barrels mentioned in the statement.

In order to discover and develop these pools, almost a million wells have been drilled. These wells range in depth from the shallow wells of less than 100 feet, drilled by manpower in the early days of the industry, to the world's deepest drilled hole, completed during the early part of the past year to a depth of 15,004 feet. More than one-fifth of these wells were dry holes and consequently failures. About one-twentieth of the wells were gas wells. The remaining three-quarters were producing wells. Approximately one-half of the producing wells have been exhausted and abandoned, leaving some 355,000 wells which are producing at the present time.

I might have carried this description a little bit further. Of these 355,000 wells which are producing at the present time, the best estimates indicate that something between 200 and 250 thousand of them are stripper wells, that is wells that are very close to the economic limit of their ability to produce, or more specifically, generally speaking, wells producing 5 barrels or less per day each.

The CHAIRMAN. Do you mean that of 1,000,000 wells which have been drilled in the search for oil, 800,000 have been successful?

Mr. DEGOLYER. Yes, sir; that is about the figure.

The CHAIRMAN. That includes all wildcatting and everything else?

Mr. DEGOLYER. Yes, sir. The reason, Senator, the ratio may appear rather high to you is because of the fact that one successful wildcat discovers one field and the development of that field may require hundreds, or in the case of some fields, even thousands of wells which are drilled without great risk. The ratio of 5 to 1 indicated is not the ratio of probability of finding oil in a wildcat well.

Twenty-one billion barrels of oil have been produced and the Nation's proved reserves are variously estimated at 14 to 17 billion barrels. Those were the official estimates, or estimates regarded as reliable, which were available to it at the time my statement was prepared. I have heard estimates from good sources more recently as high as 20 or even 22 billion barrels. Current production, approximately in balance with consumption, is $1\frac{1}{4}$ billion barrels annually or $3\frac{1}{2}$ million barrels daily. More than 1 gallon of oil per capita is consumed daily in the United States.

This in brief is a description of the present situation of the producing branch of the industry. I should like to add to it, because I think it is something that interests this committee, that as nearly as we can estimate—and it is rather difficult to get an exact figure—there are about 10 to 11 thousand producing groups, units, either persons or corporations, in the United States. In arriving at statis-

ties of this sort, a great company such as the Humble Oil & Refining Co. is one unit, and John Jones who has a single well some place else is another unit.

I should like to go from that description of the producing branch of the industry and its magnitude to a more detailed consideration of the question of reserves.

OIL RESERVES

Mr. DEGOLYER. There are almost no generally available estimates of reserves by company ownership which can be used for comparative purposes since it is seldom that two companies estimate their own reserves on the same basis and only a few companies publish estimates of reserves. Some crude guesses can be made, however, and, upon such material, various groupings can be made which are probably more exact than the guesses upon which they are based.

Approximately 10 companies own half the gross proved oil reserves of the United States. Outstanding with regard to reserve position is the Standard of New Jersey group, including the Humble Oil Refining Co. with almost $2\frac{1}{2}$ billion barrels of gross proved reserve. It is followed by 4 companies with gross proved oil reserves of the order of magnitude of a billion barrels each. Approximately 3 companies are in the one-half to three-quarter billion barrel class; 9 or 10 companies in the one-quarter to one-half billion barrel class; 6 to 8 companies in the 100 to 200 million barrel class, and probably a dozen companies in the 50 to 100 million barrel class.

On a net basis approximately one-third of the Nation's reserves are owned by the so-called old Standard companies.

The CHAIRMAN. How does that compare with the amount of known reserves that were owned by the old Standard Oil Trust?

Mr. DEGOLYER. I should think that the percentage is much higher. There are no statistics upon which to base any comparative estimate, but in my opinion the percentage at the present time is much higher.

The CHAIRMAN. In other words, the Standard companies today own a much larger proportion of the oil reserves of the United States than the old Standard Oil Trust did.

Mr. DEGOLYER. I should think that they do. It was somewhat before my time in the United States and I am not acquainted with conditions, though I do bear in mind that Mr. Pew testified the other day that the old Standard Company didn't do a great deal in production, it was chiefly a purchaser, and it is largely on his statement that I base my belief that the percentages today must be substantially higher than they were then.

Mr. O'CONNELL. Mr. DeGolyer, do the figures you gave as to the percentage of reserves held by the large companies and small companies—are those figures subject to pretty substantial margin of error? For example, you suggested that the Standard Oil companies, including the Humble Oil owned about two and a half billion of barrels of the reserve, and a few moments ago you indicated that within the past few months the estimates of the amount of oil in the East Texas field have been raised from three and a half to five billion, and that the estimates as to the total amount of reserve ranged from seventeen to twenty-two billion or more.

Mr. DEGOLYER. Yes; I should say they are subject to large error; they are subject to considerable change.

Mr. O'CONNELL. But the relationship in all probability would not change?

Mr. DEGOLYER. I think the relationship is fairly sound.

Mr. COX. Where did you get those figures?

Mr. DEGOLYER. From various sources. A good many estimates were got from the companies themselves. I myself have estimated many of the companies' reserves, and there are various technical short-cuts that rather help you.

For example, if you know the reserves of three companies operating over more or less the same territory and know the ratio of their current production to their estimated reserve, which is very easily ascertainable, you have a very fair basis for estimating the reserve of the fourth company, if you can get its production.

One-fourth by small companies or individuals, some of which have reserves of as much as 25,000,000 barrels—probably that limit is too low—one-fifth by the 10 principal independents. Since I have sat through this hearing I suspect I had better define the word "independent." Since I have grouped the old Standard companies; here in this use of the word "independent" I include major companies who are not members of the old Standard group, such as Texas, Gulf, Pure, and so forth.

And from one-sixth to one-eighth is royalty owned by landowners and royalty owners. I put that figure in here because I am in this particular case making my percentages on the net basis. This one-eighth which is owned by the landowners and royalty owners is generally subject to control or sold to the operating companies.

Whether by force of circumstance or design, the big companies are able to market their reserves less rapidly than are the small companies and individuals. The 10 largest companies, estimated to own one-half the gross approved reserve for the United States, had a gross production of 36.8 percent, or a net of 31.5 percent, of the production. The thousands of individuals and smaller companies owning the other one-half of the crude reserve had a gross production of 63.2 percent. The Jersey group reserves—this is not a recompilation of the old group again but is taking simply the Standard of New Jersey, the group as it now exists—are being produced at approximately 40 percent of the rate averaged for the rest of the Nation's production.

The CHAIRMAN. What were the circumstances that prompted you to say that the big companies were marketing their reserves less rapidly than the others, either by force of circumstance or by design? What was the question mark that was in your mind when you framed that?

Mr. DEGOLYER. I don't know what the question was, the question which was in my mind. I don't know exactly what it was, but there was a question mark in my mind as to why that had happened, whether it had happened through the desire of the big companies to maintain their reserves or whether it had happened through the more intensive operation of the small company and the greater pressure that it exerted to get its production onto the market. I don't know; it may have been some combination of the two, but I thought that it was an interesting fact and was worth bringing out.

The CHAIRMAN. Well, do you mean that the big company, the major company, tends to develop and transport and distribute the refined products more slowly than the independent?

Mr. DEGOLYER. I don't know the extent to which that tendency may run through the other branches of the industry, but it is actually a fact that he gets to market with his reserves much more slowly than the independent does. When I say he gets to market, I am referring to the crude market now.

Representative REECE. I am wondering, Mr. Chairman, and, of course, I can make the observation in the form of a question, if it might be accounted for in part by the fact that the large companies are probably in a better position to acquire extensive reserves, anticipating requirements over a long period of time, and in acquiring them doing so with the expectation, possibly, of not utilizing them for some time.

Mr. DEGOLYER. I should think, since the bulk of the production is the production of the large companies and the amount of production of the independents is relatively small, and since the independent himself—I should think in the high 90 percents of the independent producers are men who are only independent producers, they have no connection with the independent refiners, there are some few cases where the independent refiner is also an independent producer, but since the interest of the independent producer is merely in marketing his oil on the crude market, and since the large company has this whole string of investment behind it—pipe lines, refineries, markets, and so forth—there is no real reason for the independent producer to have much of a feeling about maintaining reserves.

The CHAIRMAN. Well, then, it is merely another way of saying that the big companies have the larger reserves.

Mr. DEGOLYER. Oh, yes; I have stated that here.

The CHAIRMAN. I say it is just another way of stating the same fact, probably.

All right, Mr. DeGolyer.

PROSPECTING AND CONSERVATION PARAMOUNT PROBLEMS IN PRODUCTION

Mr. DEGOLYER. I think the foregoing statements show generally enough the picture of the industry. There are two problems in production which seem to me to be exceedingly important, whether to a large company or a small company. One is the problem of prospecting for new reserves, the other is the problem of proration and conservation as it affects the amount which any producer, large or small, may be permitted to produce.

Since I conclude from the questions that have been asked in the hearings thus far that you are probably much more interested in the proration phase than you are with that of prospecting, I will try to be rather brief on the prospecting phase. The oil industry is different, I believe, from any other extractive industry in the extent to which the necessity for prospecting is a part of their regular daily business. There are many great mining companies who have in a single ore deposit reserves which will last them for decades. Very few oil companies are in that fortunate position, and especially, during the old open flow type of production that we had, the producer could hardly enjoy the flush period of a lease because he was faced

with the immediate necessity of finding another new lease somewhere else upon which to develop production if he intended to maintain a going, constant rate of production and remain as a producer.

I think the prospecting has been more highly developed by the oil industry as a result of this necessity and of the great demands which have been placed on it by the consumer. I think it has developed its prospective techniques far in advance of any other mineral industry.

From the very earliest days of the industry wells were drilled; well, they were drilled almost on straight speculation. The earliest oil discoveries, and a great many oil discoveries since that time, were drilled because there was an escape or seepage of oil or gas which attracted the attention of the prospector. It was not until about 1912 or '13 that any rationalized technique, any development at prospecting in a technical manner, really occurred, and the earliest step in that direction was the introduction of geology as a guide. Geologists had speculated considerably almost from the very beginning of the industry, but very little geologic work had been done.

The one point that I want to bring out here—I don't intend to go into a full description of prospecting, which is the risky and hazardous branch of the industry—the one point that I want to emphasize with regard to it before passing is simply this, that we have certain extremely wide areas in this Nation where oil or gas pools may be found.

The art of prospecting consists of a series of techniques, any one of which becomes important upon its discovery, peaks rapidly, and then fades out except for a slight residual value.

If I may illustrate the point, the exploration of the Gulf Coast of the United States was a problem which, until the early twenties, had no solution much other than hit and miss prospecting. The Lucas gusher was drilled at Spindletop. Spindletop is a slight topographic mound on the very flat prairies of the coast. There are a number of other similar mounds which were well known, and within a year or so they were all prospected for oil deposits. Then a long period passed by with almost no discovery of new prospects. In some of the older prospects the period of prospecting was very long and they were not proved as oil fields within a few years of the Spindletop discovery, but they were discovered as prospects.

In the early 1920's the geophysical methods were introduced into the United States. The geophysical methods are essentially the application of very precise measurements by the physicist to geological problems. One of the most successful of the early methods introduced was the so-called seismic method. The refraction method is the particular phase of it to which I wish to refer at the present time and it consists essentially in the explosion of a charge of dynamite at the surface of the ground, the recording of the time of the explosion with great precision down to a thousandth of a second, let us say, at the recording instruments placed generally 2 to 5 miles away, and the recording at the same instrument of the time of arrival of the sound wave which travels through the earth.

It so happens that most of the oil fields in the Gulf Coast are associated with salt domes, that is great plugs of rock salt thrust up into the country rock. The rate of sound travel in the normal coun-

try rock is about 5,000 or 6,000 feet per second; the rate of sound travel through the salt is about 15,000 to 18,000 feet a second. If the sound wave arrived at the normal time, that is at the rate of five or six thousand feet a second, the country was blank; if it arrived in some quicker time and the measurement of this time was less than a half second, it was a very good indication that you had found a salt dome, that a salt dome had been discovered.

Now that particular technique came in in the early twenties. It peaked very rapidly into a very hectic campaign, and by the late twenties or early thirties it had practically exhausted its usefulness.

I have gone into a detailed description of this particular technique because it is the best illustration we have of this coming in of a new method of prospecting, the peaking of that method, and its tapering off. No newly discovered method of prospecting becomes entirely exhausted, but practically there is little residual value left.

Generally in prospecting in the United States, we first had surface geology about 1913 or '14, and after 8 or 10 years, or some such time, most of the area of the United States which was amenable to examination by surface geology had been worked and the method was no longer very useful. Next we had subsurface geology. Subsurface geology is the one technique that continues because it is the one standard against which all the rest have to measure, since it is simply the interpretation of the results actually secured by the drill.

In about '19 core drilling came in, that is the drilling of comparatively shallow wells for the purpose of determining geology which is not otherwise revealed, and except for special areas it reached its maximum and tapered off. In the early twenties the geophysical methods were introduced and there have been three or four of them, first the torsion balance, almost parallel with the refraction seismograph to which I referre d just now; afterward the reflection seismograph.

The only point I want to make here is that as a prospecting problem the entire United States is not amenable to solution by any of these special techniques which have yet been developed and that every time we get a new technique we usually have a new area opened up to us which is amenable to prospecting. For example, at the present time a great deal of work is being done on so-called soil analysis where samples of the soil are taken very close to the surface. These are analyzed chemically for the hydrocarbons, for very minute amounts of hydrocarbons, and it seems probable that we may have a new prospecting method. If this method does develop ultimately we will then open up some further areas which have not been subject to technical exploration heretofore. For example, we might open up the Edwards Plateau region of southwest Texas which would be something about the size of a reasonably large-sized State. Of course, as each new technique comes along it gives us another slice at the same general nonexpanding whole, and as we progress in the art there is less and less territory left to us for prospecting.

I believe that independents are great prospectors. It is a type of business which they seem to like very much and, as I have said in my statement here, strictly on the basis of single pools I have reviewed the number of new discoveries made in the last 2 or 3 years as reported in the oil journals, running up to several hundreds, and the

small operator or independent has been the discoverer in the ratio of perhaps 2 to 1 as against the big companies. The independent in his exploration generally has to confine himself to the simpler types of prospects, and I believe on a barrel or volume basis, on the basis of adding reserves, he might not break even with the big companies because they work on the more difficult problems and the more expensive problems and generally speaking get the bigger reserves.

The CHAIRMAN. Would it be proper to say that the independent prospector gets the wells but the big companies get the reservers?

Mr. DEGOLYER. Well, that might be correct, Senator, though occasionally independent exploration results in the discovery of tremendous reserves. I think perhaps the reason the independent is so prominent as a prospector is that it is the great venturesome part of the business and is the place where fortunes are made or presumed to be made quickly and I suppose where money is also lost quickly.

Representative REECE. From your study do you think there is a probability that there may be undiscovered fields in parts of the United States which have not yet been gone into?

Mr. DEGOLYER. Yes, sir; I think it is quite probable.

Representative WILLIAMS. While you are on the subject of the geology of the situation, I wonder if you could describe to this committee a cross section of an oil field, we will say a thousand feet under the surface. What would it look like if you could put it out on a map?

Mr. DEGOLYER. Well, the simplest and most typical oil field would be the so-called anticlinal field, an anticline being simply an arch in the rocks, and a cross section of that field, a thousand feet under the surface, or at the producing sand—

Representative WILLIAMS (interposing). That is it, at the producing place.

Mr. DEGOLYER. Would be, generally speaking, a rainbow like arch. Now in all the textbooks you will usually find such arch divided by three lines. The top will be shown as gas and underneath the gas there will be the oil and underneath the oil on the flanks of the arch there will be water. Actually such types of fields do exist. They are not uncommon, but they are by no means typical. That particular type of field which has been ingrained in the textbooks is the field with a gas cap and fields with gas caps are not particularly common. The gas generally occurs in solution in the oil, just like gas is in solution in carbonated water. A more correct cross section of the field would leave the gas cap off, simply the upper part of the arch filled with oil, the gas in solution in the oil and water on the flanks.

Representative WILLIAMS. What I have in mind is, would you find there a great pool just the same as a lake of water, or would you find a number of separate pools, or would you find simply a number of veins running through the structure?

Mr. DEGOLYER. What you would find is a great pool-like mass of sand saturated with oil, the oil occurring in the pore space in the sand. That is the simplest type of field. Actually in many fields you may have more than one productive sand. You then have a multiple sand field. In many other fields the geology becomes much more complex, but this case that I have described to you is the typical and fair case for illustration purposes.

Representative REECE. Then what protects a small area within a field where the wells have been drilled around a smaller area, for instance such as Mr. Dailey was talking to us about when he was before the committee?

Mr. DEGOLYER. Nothing protects it except drilling on the lease itself.

Representative REECE. But if his drills are not sunk in due time the oil will be dissipated under his area, under his land?

Mr. DEGOLYER. If his tract is not drilled, in due time the oil will be produced from under his tract, in my opinion.

The CHAIRMAN. That is the common understanding in the industry, is it not? That is the reason requirements are made for the drilling of offset wells.

Mr. DEGOLYER. Yes, sir.

The CHAIRMAN. Because of the fear that if a particular tract of land in an oil pool is surrounded by wells the oil will be drained away from that tract unless it is itself drilled.

Mr. DEGOLYER. Yes. Of course in this particular case to which you refer and to which I should address myself since I was a partner in the development of the field, the Railroad Commission having established what was effectively a 40-acre spacing, Mr. Dailey actually, and on his own testimony, was offered the right to combine his 20 acres with another 20 acres so as not to violate the 40-acre spacing rule for the field. I think that he was offered ample protection then.

Representative WILLIAMS. Is there any plan by which there can be an equitable adjustment or equitable withdrawal on the part of all the landowners over a lake pool?

Mr. DEGOLYER. I think so.

Representative WILLIAMS. What is your plan; what is your suggestion along that line?

Mr. DEGOLYER. My suggestion is that the production of the various tracts be in proportion to the reserve of oil underlying such tract. Now it has been testified here, and since I am a specialist on the subject I willingly admit that you can't with great precision estimate how much oil—you can't make an absolute estimate of the amount of oil there is under any particular tract of land, but in the development of a pool your problem is not that. Your problem is to estimate the relative amounts of oil. It wouldn't be necessary that it be expressed in barrels. It might be expressed in percentages, and if you wanted to go further with it, you might make the relative estimate adjustable from time to time so that as the development of the field proceeded and you got more information with which to work, you could come closer to the truth.

Representative WILLIAMS. Can you mark the circumference of that pool on the surface of the earth?

Mr. DEGOLYER. After the pool has been developed, you can. The pool will be marked by productive wells and dry holes, and the line between production and barren territory can be shown on a map with great ease.

Representative WILLIAMS. Then you would distribute the amount that each landowner was entitled to in accordance to the number of acres he had within that area?

Mr. DEGOLYER. Acreage is important, as probably the most practical and easily available measure of reserves. It is not absolutely

precise, but I think that we would make a great step forward if we put it on an acreage basis. I think we would remove a lot from dispute that is now under dispute.

Representative WILLIAMS. What other claims are being made, what other plans or suggestions are made outside of the acreage?

Mr. DEGOLYER. I said I would try to do it on reserves. When you come to the question of reserves, the thickness of the sands underneath the land, and the porosity, permeability, and other factors enter into it. Two men might have in the same pool the same acreage, but one man might have 10 feet of sand and the other might have 20 feet of sand under his acreage.

Representative WILLIAMS. How can that be determined?

Mr. DEGOLYER. That will be determined by the drill in the course of the development of the field.

The CHAIRMAN. But in fixing the percentage for the operation of a unit field, for example, it is impossible to know what those factors are unless the particular tract has been drilled.

Mr. DEGOLYER. That is true.

The CHAIRMAN. So that if a unit plan were to be adopted for a new field which had just been discovered, let us say, by the drilling of one well at the apex of the field, a distribution of the rights in that one well upon the basis of the percentage of each owner's acreage to the total acreage would be altogether lacking in accuracy, in all probability, would it not?

Mr. DEGOLYER. It would be lacking in accuracy, but oil, especially the development of oil, is rather a gambling business and I think you probably wouldn't have more trouble in getting your plan accepted as a practical solution.

The CHAIRMAN. That is probably true, but that wasn't the point I was developing.

Mr. DEGOLYER. I see your point.

The CHAIRMAN. There is no uniformity in wells in a given pool?

Mr. DEGOLYER. Well, there is some general degree of uniformity, but there is no precise uniformity. I mean, there can be wide variations, that is the point.

The CHAIRMAN. That is what I mean, that there would be wide variations depending, as you said a moment ago, upon the depth of the sand, upon its porosity, and so forth.

Mr. DEGOLYER. Yes.

Representative WILLIAMS. For my information, and perhaps for the record, what is the unit operation plan? The Senator seems to know that. What is that?

Mr. DEGOLYER. The Senator has addressed remarks to the unit operation plan several times and I judge he is thinking about unit operation on the public domain.

The CHAIRMAN. Yes; I am.

Mr. DEGOLYER. As to which I am not very well informed. As a technical thing, as an operating plan, unit operation means simply the operation of a single pool as a single unit, I mean by one direction.

The CHAIRMAN. And instead of having wells drilled upon the land owned by individual persons, there would be a limited number of wells drilled and each owner in entire pool would have an interest in each well drilled regardless of on whose land it was drilled.

Representative WILLIAMS. Is that plan adopted and in practical operation in the producing field, or is that confined only to governmental operations on the public domain?

Mr. DEGOLYER. I think that it is used both ways. I will admit that just at the moment I don't seem to be able to find examples very readily. Of course, I could cite examples of unit operation which are quite accidental, where one company happened to control all of the land and had a unit operation.

Representative WILLIAMS. That would be perfectly simple if you had a common ownership.

Mr. DEGOLYER. I can also recall fields where there is a very divided ownership, and there they achieve practically unit operation by leaving the direction of the development of the field, in the best interests of the field and for the preservation of equity among the divided ownership, in the hands of an engineering committee, such as in the Yates Pool in Texas.

Mr. SHAUGHNESSY. Mr. DeGolyer, there seems to be some difficulty on this point, that although you may be able after a field has been drilled to determine how much oil should go to each producer, how can you do it in advance of the drill?

Mr. DEGOLYER. You can't do it with a great degree of precision in advance of the drill, but you have the case, for example, of the Kettleman Hills which was one of the biggest unit operations ever attempted in the country and where provision was made for subsequent adjustment of the lines, even as to the acreage to be included in the unit. A man might have gone into that unit with a certain percentage ownership and after the pool was developed and the readjustments occurred, find himself with a much lower percentage of ownership. That is a practical way of meeting the question, Mr. Shaughnessy.

Mr. SHAUGHNESSY. That is due partially to the fact that different variations in the sand occur after the drilling has been done, is that correct, and pressure, porosity?

Mr. DEGOLYER. It is due to the fact that we just don't know where the edge of the pool is, that is all. I mean, the pool has a boundary and we don't know where it is until we find it. We might guess within a half mile of where it would be.

The CHAIRMAN. At best, all these plans are approximations and they are not accurate.

Mr. DEGOLYER. They are not precise, no sir.

Mr. SHAUGHNESSY. Do you think they do substantial justice?

Mr. DEGOLYER. I think they do, yes. I don't think there is need for me to continue the discussion of prospecting.

Representative REECE. Since Mr. Dailey testified concerning that matter of his,¹ I am wondering if sometime during your appearance you expect to make a statement with reference to it.

Mr. DEGOLYER. I am quite at the disposition of the committee with regard to that. I would be pleased to be questioned with regard to it.

Chairman REECE. I noticed in reading his prepared statement² that your name occurred in it several times and since the committee's time

¹ Supra, p. 7291 et seq.

² "Exhibit No. 1178," appendix, p. 7520.

was taken up by Mr. Dailey's testimony, I thought it might be helpful to have the matter developed. And I thought possibly since your name was mentioned that you might also feel that way about it. Needless to say, I know nothing about it and have no interest in it myself except as a member of the committee.

Mr. DEGOLYER. I called on Mr. Cox after hearing Mr. Dailey's testimony and told him that I was quite at your disposition with regard to it, that I would be very glad to have it gone into.

The CHAIRMAN. Mr. Cox, are you prepared at the proper time to make some inquiries about the matter to which Congressman Reece refers? You have Mr. Dailey's testimony there.

Mr. Cox. I think I have a copy of his statement here. The one aspect of the testimony which Mr. DeGolyer called to my attention was one which I planned to ask Mr. DeGolyer to make a statement about, so that his story of the transactions might appear on the record. I hadn't planned any very long examination about the details of the transaction.

The CHAIRMAN. Suppose we bring that up when Mr. DeGolyer has concluded his presentation. I was going to ask you, Mr. DeGolyer, with respect to prospecting, whether, as the years have gone by, the independent plays as large a proportion now in prospecting as he did—plays as large a part?

Mr. DEGOLYER. I don't think that he does. Prospecting has developed at a tremendous rate during the past 20 years, and especially, from the time of the introduction of the core drill about 1919, some of the advanced methods of prospecting became quite expensive and generally speaking are beyond the reach of a good many independents. As far as the effort to find oil is concerned he is still at it in large numbers.

The CHAIRMAN. But the actual drilling, the actual search for oil under conditions as they now exist is largely a task for those who can bring large amounts of capital to the job?

Mr. DEGOLYER. That is quite true.

The CHAIRMAN. And that, you say, has a tendency of eliminating the independent from the prospecting field? I say a tendency.

Mr. DEGOLYER. It may have a tendency. As an actual matter of fact, generally speaking, the independent keeps to those particular areas which are advantageous from his viewpoint in being low-cost areas. For example, southwest Texas has been quite a field of independent endeavor most of the time, as well as western Kansas.

The CHAIRMAN. Now we hear it frequently stated, and I think it was stated here by one of the witnesses, that the geologists for the major companies have upon occasion, at least, if not frequently, condemned certain areas as probably not being good prospects, but that thereafter some independent who was willing to risk his capital went in and proved those areas. Is that the fact?

Mr. DEGOLYER. I don't know that that is the fact. Geology, Senator, I hate to admit, is probably the most inexact of the sciences.

Mr. Cox. Worse than economics? [Laughter.]

Mr. DEGOLYER. Not so dismal.

The CHAIRMAN. But economics may not be a science.

Mr. Cox. I would agree with that.

Mr. DEGOLYER. There is great division of opinion, and I don't think that you can classify the division of opinion among geologists. We

have seen most things classified here on independent and major lines, but I doubt if that can be done with geologists. I have had experience along that line myself, which I am glad enough to tell because I was the one who was right—and of course that is always pleasing.

The CHAIRMAN. That is always satisfactory.

Mr. DEGOLYER. I found a case by geophysical methods, prospecting south Texas, and offered it to one of my friends in one of the major companies after I had leased it up, and after he had looked into it, he called me up and said that this particular prospect as far as he was concerned was the acme of normalcy—whatever that means. This was a geophysical prospect. I afterward succeeded in getting it drilled and we did discover an oil field, but I cite this only as evidence that there are many minds and many views. In fact, I think one of the important things about this industry is the fact that the prospecting is in the hands of so many men, and that they do have different views. I doubt whether any very catholic-minded oil geologist would have recommended the prospect which Mr. Joiner, an independent, subsequently drilled and discovered the greatest Texas oil field. It wasn't a thing of the type that we were looking for.

The CHAIRMAN. You spoke of having leased up this area in which you had your own experience. By that I assume you mean before any prospecting was initiated, before you offered it to anybody to drill, you had acquired leases upon all the land which in your judgment was likely to be oil-bearing.

Mr. DEGOLYER. That is true, all the land we could obtain that was likely to be oil-bearing.

The CHAIRMAN. There was some land likely to be oil-bearing that you could not obtain?

Mr. DEGOLYER. I think that is the case, yes.

The CHAIRMAN. Is that usually the practice?

Mr. DEGOLYER. I think that generally is it.

OPPORTUNITIES FOR THE INDEPENDENT PRODUCER DIMINISHING FOR LACK OF CAPITAL

The CHAIRMAN. Do the independent prospectors find themselves able to acquire all of the acreage in particular pools that they want to test?

Mr. DEGOLYER. Well, their experience I should say generally is about the same as that of anybody else. Sometimes they do and sometimes they don't. In this particular instance I couldn't get all of the land that I thought might possibly be productive because part of it happened to be under lease to someone else, and that I was unable to get.

The CHAIRMAN. Do the independents still maintain their percentage of discoveries, or is that decreasing as the expense of prospecting is increasing?

Mr. DEGOLYER. I don't think it is decreasing. As an independent, I think that an independent has certain advantages over a big company. A big company has certain advantages over an independent, beyond any question, but by and large I think that the independent will be a wildcatter as long as there is any oil industry left for him to wildcat in.

The CHAIRMAN. And you think there is still an opportunity for the independent?

Mr. DEGOLYER. I know there is an opportunity for the independent.

The CHAIRMAN. And it has not been diminished, is that your testimony?

Mr. DEGOLYER. On the basis of percentages, I believe it has been diminished, because the advance of these new technics, most of which are very expensive, takes it out of the hands of the independent, not because he is an independent but because he hasn't got the capital to support him.

The CHAIRMAN. So that the modern independent is likely to be a person who can command a good deal more capital than the old-fashioned independent could.

Mr. DEGOLYER. I suspect that he is. Under proration the modern independent—let us assume that he has some production of his own—has something which is now collateral on which he can borrow money at the bank. He can command capital. In the old days that wasn't always the case. An oil property wasn't regarded as collateral.

The CHAIRMAN. In the beginning, when as you stated drilling took place where there were oil seeps, the discoveries were made at very shallow depths, so that it was possible to drill a well where there was an oil seep at very little expense and an individual could do it, but an individual can't do any prospecting today to amount to anything, can he? I mean one single person on his own.

Mr. DEGOLYER. I should think that he can.

The CHAIRMAN. That is what I am trying to get at.

Mr. DEGOLYER. And more particularly he can take on bigger ventures.

The CHAIRMAN. But he must be an individual who has a large amount of capital.

Mr. DEGOLYER. No; this is another condition that I am explaining. He can take on bigger ventures, and commonly does. It is a common practice among independents—four of us will go together. If we have a prospect which seems attractive and it is too big to be handled by one man within his resources, that is, he might be able to handle it but he finds that the speculation is too great, the hazard is too great for him to risk that much of his capital, he takes a half of it and somebody else takes a half. You have a typical case in this field Mr. Dailey testified about, the Old Ocean field, where four men joined together in a wildcatting venture which would have been an expensive one, even for a big company.

The CHAIRMAN. That required the expenditure of a large amount of capital.

Mr. DEGOLYER. It did; yes, sir.

The CHAIRMAN. Well then, isn't it a fair conclusion that as the difficulty of finding oil increases, the prospecting business is becoming more and more the business of large accumulations of capital?

Mr. DEGOLYER. I think that is true.

Mr. AVILDSSEN. I don't know anything about Illinois; perhaps you can tell whether that was an example of the larger companies' development.

Mr. DEGOLYER. In one way it was, in one way it wasn't. After the development of the geophysical methods, the older fields east of

the Mississippi River were generally neglected. The production there was very small and nobody seemed to be paying much attention to them. It apparently occurred to some of the companies that Illinois ought to be amenable to geophysical work too, so they went up there and leased lands and did geophysical work. I was interested in a company that, I think, brought in one of the very early fields in Illinois as a result of geophysical work. Fields being very shallow, it is rather a paradise for the independent and the independents flocked to Illinois in droves.

We were coming out of a country where you might have to drill from 4,000 to 10,000 feet, and in Illinois they were developing pools that were 1,000 and 1,200 feet deep.

Mr. AVILDSSEN. The original prospecting was done by the larger companies, and then a drove of independents came in and, with small capital, found other wells?

Mr. DEGOLYER. I should say essentially the original prospecting was done by the larger companies, though there was no reason, in the particular case, why it had to be done by the larger companies, since I myself was a part of a very small independent company and was successful in finding our own pool in Illinois.

OIL RESERVES AND THE EFFECT OF CONSERVATION

Mr. AVILDSSEN. Now, getting back to the matter of reserves, could you tell us what the trend has been with regard to reserves? You state that the major companies now have about 50 percent of the reserves. What did they have 5 years ago?

Mr. DEGOLYER. The major companies would have much more than 50 percent of the reserves. I say about 10 companies own half of the reserves.

Mr. AVILDSSEN. Those 10 companies, did they have more than half 5 years ago, or less than half? What has the trend been?

Mr. DEGOLYER. I can't tell you what the trend has been, because there are no statistics available as of that time. I would guess, again without being able to support it statistically, that the proportion of the reserves owned by the larger companies, the majors or whatever you want to call them, is greater now than it was then.

Mr. AVILDSSEN. Has that increase come about through discovery on their part, or by purchasing from the independents?

Mr. DEGOLYER. By both. They are able prospectors.

Mr. AVILDSSEN. About evenly divided between purchasing and discovery, or what proportion would you think?

Mr. DEGOLYER. I should hesitate to try to give it a proportion without looking into the matter further.

Mr. AVILDSSEN. Roughly, have you any idea? Do they do a lot of purchasing of reserves, or is it mostly discovery?

Mr. DEGOLYER. I should think that it is mostly discovery.

Representative WILLIAMS. I understand from your figures, based on the present rate of consumption, that the reserves will be exhausted in some 10 or 15 years.

Mr. DEGOLYER. No, sir; and as one of the previous witnesses said, I'm glad you brought that up. The reserves couldn't possibly be exhausted in 10 or 15 years. We would be on short rations before that

long. But I think, that since the first reserve estimate was ever made, the temptation to divide that reserve by the current rate of production to see how many years it would give has been almost irresistible.

In the first place, you couldn't get the oil out in 15 years. All that means, in terms of years, is that that is the ratio of the current consumption to the amount of developed or proved reserves. You have enough for 15 years, but you couldn't get it in 15 years, if 15 years should be the figure.

MR. AVILDSSEN. How long would it take you to get it out, would you guess?

MR. DEGOLYER. I don't know. You probably could get the bulk of it in 15 years. You would probably have some of it coming along 20 or 30 years after.

Representative WILLIAMS. Our supply would be very much curtailed in the latter part of the years, then. We couldn't maintain present production and consumption.

MR. DEGOLYER. If you didn't discover any more oil, you couldn't, that's right, and that is the one thing I have been trying to emphasize here, that this industry is faced with the consequent necessity for discovery.

MR. SHAUGHNESSY. I would like to bring out one point in that connection. Isn't it true that as the years go on the cost of producing such oil as is now part of your reserves will increase?

MR. DEGOLYER. I think that that is likely to happen.

A lot of these questions here that involve the future rather emphasize, to my mind, that we are in a transition period here with regard to our methods of production; I mean, if conservation and proration are to prevail, and if we are to go on to this desired optimum, costs will be one thing. If all these laws should be stricken down and we go back to the old open-flow method, costs would be another.

I think that there is a possibility of continued reduction in the future of the cost of production if we are going to operate on this so-called optimum recovery and can get the wider spacing of wells which can easily go with it.

MR. SHAUGHNESSY. By cost of production do you mean just cost of production; or cost of exploration and production?

MR. DEGOLYER. I mean the total cost of production and discovery.

MR. O'CONNELL. Do you also mean the cost of crude oil?

MR. DEGOLYER. Yes, sir.

MR. O'CONNELL. Do you mean the cost to a refiner, say, of crude oil, under proration?

MR. DEGOLYER. Yes, sir.

MR. O'CONNELL. We have heard quite a bit to the general effect that one of the purposes, or at least one of the results, of proration is to reduce and restrict the amount of crude oil produced, and as a result of that to support the price.

MR. DEGOLYER. That is one of the things that I want to go into a little bit further on, but the question of the degree to which real conservation takes place—I am not concerned with price fixing rackets or attempts to manage; as a matter of fact, I think, on the face of the record, so far as proration has done anything, and admitting that it is a restriction of output and, therefore, must have an effect on

price—I think so far as it has done anything it has tended to support what the men who administer it appear to regard as a minimum price beyond which proration itself becomes damaged if you go, but I will develop that theme a little further.

Now I think, in going into this question of conservation and proration, I shan't go very deeply into my statement. It is there before you, but I shall be guided to some extent by the opinions that seem to have been formed by the examinations here before this committee up to the present time, and will try to see if I can forward our understanding of the problem.

The old method of production, the old open-flow method, under the intense competition engendered by the law of capture, I think beyond any question—and I speak now technically—involved great underground wastes. As I have said in my report,¹ these are things that are difficult to prove and they can only be matters of opinion. But take east Texas itself, which is by no means a perfectly prorated pool, but one which certainly has had tremendous benefits from proration. By the time the pool was outlined, at which time we had data with regard to the thickness of sand and the area that was covered, various estimates of the productivity of the pool, various considered estimates by the most competent men available at the time, ran as low as a billion and a half to two billion barrels as the total amount of oil recoverable. Later on, the best estimates as the field showed something of its performance ability, ran up to three billion and three billion and a half, three billion and a half being the figure that I used in my statement. At the present time the estimate is 5,000,000,000 barrels.

Now, part of that estimate may be due to the fact that the earlier estimates were too low, but part of the revision of the estimates is undoubtedly forced by the fact that a greater amount of oil is being recovered. I should say that possibly proration in east Texas has saved as much as 2,000,000,000 barrels of oil on the basis of a 5,000,000,000-barrel estimate.

Now, if you question me very closely on this, I will admit that if somebody comes along with data afterward and indicates it might only be a billion barrels, I wouldn't argue much about it, but my free thought at the moment is that probably 2,000,000,000 barrels has been saved, and I am supported in this belief not only by these increased estimates but by the fact that cores which have been taken in watered-out parts of the sand have shown an oil residue of about 80 barrels to the acre-foot. The original content was probably six or seven hundred barrels per acre-foot. Eighty barrels per acre-foot of sand isn't much more than enough to varnish that much sand, and the recovery that we expected under any of the old open-flow methods for the fields where we have had experience would be something less than 50 percent, whereas here we appear to have got a recovery of about six- or seven-eighths of the oil.

This is simply a citation of the difference in recovery between old open flow and restriction of production. I think that restriction of production, strictly from a technical standpoint, from the standpoint of trying to increase the efficiency of a mining operation, no matter how little of it has been done or how badly it is done, has

¹ "Exhibit No. 1183," appendix, p. 7662.

been of value in conservation. I don't think there is any question about it.

While we are on this subject of conservation, perhaps I can contribute to an understanding of it by a simple if somewhat theoretical consideration of this problem of most efficient recovery. We have had witnesses before this committee here who were violently opposed to conservation proration as now practiced, but who said that they thought what ought to prevail would be best engineering standards, and one of them was even in favor of Dr. Pogue's optimum.

The last preceding witness testified, if I remember correctly, that the idea of a pool as a common source is generally and with few exceptions fallacious. Technical evidence contrary to his contention is overwhelming, but since he offered the example of multiple sand fields, it may be that we suffer only from confusion of terms.

Let us take, then, a single sand pool which would be a common source of supply, and the simplest one with which we can deal. We would have a porous formation, let us say of sand, structurally somewhat higher in the pool than in the barren areas adjacent to it. The sand would be sealed as to the top by an impervious formation, clay or shale, and this would be the retaining formation as to the top and flanks of the pool.

The oil would occupy the porous space of the highest part of the sand and be supported by bottom or edge water, salt water under hydrostatic head, which would occupy the barren part of the sand.

The oil in this pool is subject to two pressures, the pressure of the dissolved gas contained within it, the so-called gas energy, and the pressure of the bottom and edge waters, the so-called water drive.

The physical condition of the oil in places is also the result in part of the gas dissolved in it, the oil being much more fluid and less viscous than in the state in which we are accustomed to see it, the difference being as great as the difference between kerosene or even gasoline and ordinary crude oils, according to the type of crude and the amount of gas in solution.

I have sketched here a theoretical field. I believe that we can all agree that the most desirable method of producing the oil from such pool or from any pool is that method which yields the greatest recovery of oil subject to legal and economic limitations. The introduction of legal and economic limitations makes the problem a complex one, and in order that to get further with it I propose to dismiss them for the moment and, for the purpose of simplification, just consider how much oil we could possibly recover from this pool if there were no other factor that had any control, and we were being given a premium, let's say, for getting the greatest amount of oil out of the pool.

This would give us an ideal optimum, too ideal, perhaps, to be achieved in actual practice, but of value in any event as a goal toward which we should strive.

I think no geologist or engineer who studies this problem can escape the conclusion that most oil will be recovered only if all the values of the gas in solution are used, both its energy value as an expulsive force and its viscosity reducing value, and that this desideratum can be achieved only by producing the oil so slowly that we get a perfect follow-up of the water drive.

The ideal rate of production depends upon many things in this theoretical consideration—the type of oil, the amount of gas in solution, hydrostatic head of water drive, size of pool, porosity and permeability of the sand. These will vary widely for different sands. It might be that under the most unfavorable conditions it would require a thousand years to get this optimum amount of oil out of the pool. It might be that under the most favorable conditions, such as those that exist in the Golden Lane pools of southern Mexico, all of that oil could be just as efficiently produced if it was produced within 24 hours. But both of those conclusions are theoretical and not practical. The point is that this would be the method by which we would recover the most oil possible under any condition.

Now you have two measures of the effectiveness of this recovery, one the so-called bottom-hole pressure, which is merely the pressure developed at the bottom of the well and recorded on a specially constructed pressure gauge sent down for that purpose. That is one measure. The differences in bottom-hole pressures from time to time, the fact of whether the whole tendency is down too rapidly or whether it is on a flat basis.

The other measure is the gas ratio measure; that is, whether you are producing more gas with a barrel of oil than is originally dissolved in it.

Having arrived at our theoretical and ideal optimum, let us consider it as a practical matter which involves the legal and economic limitations. The legal limitations involve chiefly the necessity of doing equity to a divided ownership and those arising out of the various proration laws. They may change from time to time, but they are definitely known factors.

And then we come to the economic limitations. The economic limitations are the cost-price relationships. Part of them are determinable, part of them have got to be assumed. You can, even if you don't know, you can estimate to a close degree of accuracy the cost of development of a field and the actual operating cost of producing oil.

But you haven't got enough yet to solve your economic factor. You haven't got enough yet to solve your economic problem. The last thing that is required is the question of price, the price that you are to realize from the oil sold, so that becomes part of the engineering problem. I don't think that there is any question about the solution; it is something which has to be worked out for each field by itself. Fields are more individual than people.

And you come to another phase of conservation. Before leaving this first one, however, I should like to say that I doubt whether there are any fields, there are certainly not many fields in the United States today, with all of the proration restriction that we have got, that are being produced under what Dr. Pogue describes as his optimum, which I think is another way of saying "the best obtainable engineering practice." I don't think there are many fields in the United States being produced under those conditions, and I think further that if all of the fields in the United States were to be produced under this optimum that you would have less available oil today than you have. In fact, you probably wouldn't have enough to meet your current demand. We are in the midst of a transition

period here, and if we really get to the optimum production we, in my opinion, will have to increase our proven reserves above the point where they are now in order to do it.

Mr. O'CONNELL. On what do you base your belief that if all the wells were producing according to Dr. Pogue's optimum you would have less oil being produced than is being produced today?

Mr. DEGOLYER. I have made various estimates of my own from time to time during the past 2 or 3 years in trying to arrive at an answer to that question. While the data aren't entirely satisfactory, I have got far enough with it to think that I am correct in that opinion. Incidentally, I have checked it with other engineers who have been interested in the same problem and I find that those are the results that they have arrived at independently too.

Mr. O'CONNELL. I take it there is probably a wide variance between particular pools, and some of them are producing oil at a rate which is in excess of the optimum and some of them are producing oil at a rate which under proration might be much less than the optimum.

Mr. DEGOLYER. I should guess that all of them are producing above the optimum.

Mr. O'CONNELL. How much is East Texas producing now, do you know, per well, under proration?

Mr. DEGOLYER. I don't know what it is. Incidentally, the well as a unit doesn't come into the problem. It is a question of the rate of taking oil from the field, whether you have got 20,000 wells or one well to do it.

Representative WILLIAMS. Right in that connection, what would be the difference between having one well, we will say, of 8 inches, and having 16 wells with the choke confining their output to one-half inch?

Mr. DEGOLYER. One well with six inches, or whatever the diameter may be—in most of our fields the difference isn't particularly important, unless you try to take the full capacity or some increased capacity. It is a question of the rate at which you take the oil, rather than the size of the opening that it comes through.

Representative WILLIAMS. I am assuming that. I am taking in one case one well that is, we will say, eight times as large as eight wells, the eight having the same output, the same flow, as the one.

Mr. DEGOLYER. If the eight wells were, for theoretical purposes we will say, drilled very close together, I don't think that there is any particular difference, but it is in the spacing that you generally get from eight wells which gives you drainage over a much wider area. You see, the problem, the point where your physical waste begins, in my opinion, is when you take gas out from the bottom of a well faster than the oil follows up behind it. When you do so you leave space in the sand and that space is filled by gas coming out of solution. The propulsive energy of the gas which comes out of solution is lost and the oil from which it comes becomes much more viscous and less liable to be produced.

Representative WILLIAMS. It seems to me that if the same purpose could be attained by simply having one well, there is considerable economic loss in drilling these wells.

Mr. DEGOLYER. There is, a very great loss in drilling the wells, and that is the reason that we are tending to wider and wider well

spacing. In the early days wells were drilled very close together. At the present time 20-and 40-acre spacing are not uncommon. It also helps solve an economic problem. In the Magnolia Arkansas field they are drilling on a 40-acre basis and giving the wells, which are quite expensive, a daily allowable of 300 barrels. Old style, they would have drilled four wells to the 40 acres at a cost of, let us say, around \$75,000 a well, and given them an allowable of 75 barrels each and the increase in cost would have been considerable.

Representative WILLIAMS. Has there through the years been any very definite relation between the price of crude oil and the price of the finished product, gasoline, any definite relation between the two?

Mr. DEGOLYER. That is a little bit out of my field but I think that there has been a general relationship and a definite relationship.

Representative WILLIAMS. It seems we have had some testimony here in some cases where the price of crude has gone up and the price of the finished product has gone down over certain periods of time. I was just wondering what the explanation of that kind of procedure was.

Mr. DEGOLYER. That is a little bit beyond my particular field.

COST OF PRODUCTION

Representative WILLIAMS. What is the average cost of the production of crude at the ground, to get it out of the ground?

Mr. DEGOLYER. I believe we were talking about today as to the average cost. There is a report on the cost of producing petroleum issued December, 1935, by the Petroleum Administrative Board. Their average weighted cost for the United States, for all groups, was within a fraction of 80 cents.

I don't know whether I think that is right or not. In my opinion the average cost of producing oil is higher than that. I think that the average cost of producing oil east of the Rockies is something between 90 cents and \$1. I think west of the Rockies it is probably 10 or 20 cents cheaper, but I have read this report and looked over the tables, and like anything else it depends upon a lot of the assumptions that you have to make. For example, in this report they include interest. I don't quite see why that should be. Personally, I probably wouldn't include interest if I were estimating the cost. On the other hand, they have a figure for amortizing intangible drilling cost which looks ridiculously low to me, and so I decided to let them have the interest and probably that would make up for my lack of cost on the other hand. I think that probably 80 to 90 cents for Mid-Continent and 90 cents to \$1 overall east of the Rockies and around 70 to 80 cents for California are about the average costs of producing.

Mr. SHAUGHNESSY. There is one thing I would like to bring out in that connection. The cost varies greatly from field to field, doesn't it?

Mr. DEGOLYER. Oh, it certainly does.

Mr. SHAUGHNESSY. But the price does occur without relation to cost.

Mr. DEGOLYER. The price, I take it, is the buyer's bid.

Mr. SHAUGHNESSY. The buyer's bid. It is frequently without relation to the cost in the field.

Mr. DEGOLYER. Well, since we just agreed between us that the price varies widely from field to field and since the posted price is the thing that covers half the State or a section of the country, I would say that at any time any posted price anywhere would have no relation to cost in certain areas.

Mr. AVILDSSEN. Getting back to this matter of drilling, have you ever made an estimate of how many wells should have been drilled in East Texas pool to get the maximum amount of oil out of the pool with the minimum of wells? Have you any idea of how many unnecessary wells were drilled in that pool?

Mr. DEGOLYER. No; I haven't.

Mr. AVILDSSEN. Haven't you any rough idea at all?

Mr. DEGOLYER. Well, I can give you some information upon which a rough idea could be based. About the same time there were three pools developed, the Hobbs' pool in New Mexico, the Oklahoma City pool, and the East Texas pool. All of them were great pools. Of course, the East Texas pool is the greatest pool in the world, not comparable quite with anything else. The Oklahoma City pool is a much bigger pool than Hobbs, but Hobbs was decidedly a major pool. Hobbs was drilled on a 40-acre basis. Oklahoma City and East Texas were drilled on a much, much lower density. Personally, I think if you had no legal questions as to ownership, 40 acres would have been an ample close spacing for the development of any pool produced under good engineering practice.

Mr. AVILDSSEN. On that basis, then, how many excess wells would you guess were drilled in East Texas?

Mr. DEGOLYER. Well, there were 100,000 acres; I think the density is about one well to 5 acres, so I would say about—

Mr. AVILDSSEN. Eight times too many.

Mr. DEGOLYER. About eight times too many.

Mr. AVILDSSEN. How much was the average cost?

Mr. DEGOLYER. I don't know, I suppose around \$15,000.

Mr. AVILDSSEN. How much money was wasted, would you say, in that field in drilling these wells? You are an engineer, you are supposed to figure these things.

Mr. DEGOLYER. I can figure it; I haven't, but you have got all the elements there. We can agree that it was a very substantial amount.

Mr. AVILDSSEN. It would be interesting to get that figure into the record. It may take a second to figure it out. How many excess wells?

Mr. DEGOLYER. There are 100,000 acres.

Mr. AVILDSSEN. How many wells are there in East Texas?

Mr. DEGOLYER. Twenty-four thousand.

May I ask, Is the 5-acre spacing about the right density? ¹

Mr. FARISH. Yes.

Mr. DEGOLYER. Twenty-four thousand wells.

Mr. AVILDSSEN. Twenty-one thousand excess, about?

Mr. O'CONNELL. Twenty thousand excess at \$15,000.

Mr. DEGOLYER. I think on the premises we have deduced here and the information that I have secured from the audience, that if

¹ Conferring with Mr. W. S. Farish, president, Standard Oil Co., New York City, whose testimony before this Committee appears in Hearings, Part 17.

there are 100,000 acres and a 40-acre spacing, that would be 3,500 wells, and if there are 24,000 there today, presumably that would be 21,000.

Mr. AVILDSSEN. That is right.

Mr. DEGOLYER. And 3,500 necessary wells.

Mr. AVILDSSEN. And that \$15,000, whatever it comes to—it comes to over \$300,000,000. Now, in addition to spending \$300,000,000 more than was necessary for wells, do we get less oil out of that pool as the result of having so many excess wells?

Mr. DEGOLYER. That I don't know. There is a school of thought which thinks that you do under anything like perfect proration.

Mr. BERQUIST. May I ask this question: In your discussion on cost you stated that certain cost studies had been made with which you do not agree, and you rather make it appear that the question of cost is vague. I may also add that companies reporting to the T. N. E. C. said it was impossible to report on investment, costs, profits, and so forth, of the various branches of the industry, including the production branch. Would you consider that accurate, complete costs should be kept by producers to the end that the economics of production of crude might be better understood and placed upon a factual rather than a vague and hypothetical basis?

Mr. DEGOLYER. I think that you misunderstand the condition to some degree. Otherwise, I think the answer would be yes; that I think exact costs should be kept. The exact costs are kept, but all costing is based on certain assumptions and different companies make different assumptions. To cite a case, one company may write off all of its intangible drilling costs as it is permitted to do under the law. Another company may capitalize them and amortize them over a period of years. One company may amortize them on a barrel basis, another company may amortize them on a unit basis, and you get confusion. You will find that the producing costs, the so-called lifting cost, is generally a very exact cost and can be compared between different companies, but when you get past that point, take a company which is a producing company, one company may spend four times as much as another in its effort to find additional oil. None of the costs that we have today are the exact costs. Our costs are the cost of producing present oil plus the cost of finding oil which we hope to produce sometime in the future. I mean, it has got to be that way from a business viewpoint. The exact cost would be the cost of producing the oil and the cost of finding the oil that you have produced.

Mr. BERQUIST. We have received many answers, Mr. DeGolyer, to the effect that even though you calculated costs by the different branches of the industry and had figures on investment and profits, and costs, and so on, that they would be, well, meaningless; that it could be done but they would be meaningless; or that it could not be done. After all, in making many decisions in the industry, isn't it necessary to have some pretty good bench marks as to whether you proceed in operation, whether it be in production or refining or marketing or what not?

Mr. DEGOLYER. Yes, sir.

Mr. BERQUIST. In other words, doesn't a lot of this we have heard about being able to determine the cost of production assume this kind

of significance: You ask a man how old he is and he can tell you the year and the month and day of his birth, but it isn't very pertinent to know what hour he was born on a particular day. It assumes that sort of significance, doesn't it?

Mr. DeGOLYER. I don't think it is quite as bad as that. I think there is a wide variation in the method of costing among different oil companies and I think, rather than trying to be mysterious about it, each company when it is asked for these figures is rather conscious of the fact that the figures that it has set up by its method of accounting may not be comparable with any other. I think for a broad purpose like this to get it down to the matter of what it costs to produce oil—and I think it is a figure that should be determined all right—that you have to have a real investigation made by accountants who can go clear into the question of why do you charge this and why do you charge that. I am not talking about little spools of thread and packets of needles, either.

Mr. BERQUIST. There has been a lot of discussion about the cost of production here. From what you say, then, do they lack so much comparatibility, and so forth, that they have no validity for purposes of discussion? On the one hand, reference is made to the cost to produce; on the other hand, we get the answer that to determine costs within any branch of the industry is meaningless because you can't properly prorate the different elements of cost, and so on. After all, those things can be done with a degree of accuracy great enough for purposes of making decisions, and also great enough so that you don't have differences such as you mentioned awhile ago of 10 or 15 cents a barrel as being the cost of production.

Mr. DeGOLYER. I agree with you, and I think that this report on costs is a very fine job, and it is the best thing that is generally available to us right now. And yet I told you that, in my own opinion, I thought their costs were too low, and I gave you some of the reasons why I thought that the cost was too low, and if you ask me what the cost of producing oil is, I make up a theoretical figure in my own mind which seems to me to be much more satisfactory than the costs that I have got from hundreds of companies, a number of which I have examined into.

I am afraid I have only further confused a confusing problem, but I think the problem is a difficult problem because it does require assumptions, and the assumptions in different companies differ rather widely and their figures aren't much good for a general compilation; but I think if you can get, not the ultimate break-down but just a little break-down, down the road from them, that you can then set up figures for yourself which will be more nearly correct.

Mr. AVILSEN. Mr. DeGolyer, getting back to these 21,000 unnecessary wells in East Texas, have you any rough idea as to how many of those were drilled by the major companies and how many by the independents?

Mr. DeGOLYER. No; I haven't an idea on that subject at all. I don't really think it makes much difference. Under the highly competitive conditions you get a pattern where no man is his own master. It just goes on and on.

Mr. Cox. Can you tell us when those wells were drilled?

Mr. DeGOLYER. They were drilled from the discovery of the field, which as I remember it, was in late 1930. Probably most of them were drilled during '31, down to the present time.

CONSEQUENCES OF PRORATION REGULATIONS

Mr. Cox. And there have been proration regulations in that field during that time, have there not?

Mr. DeGOLYER. There have been proration regulations in force in the field, though in justice to the proration people I think we must realize that was one of the earliest attempts to use the proration laws and people didn't just do things in the East Texas field because they were ordered to by the committee. It was a very imperfect control which became more perfect only as the result of a lot of court decisions, and so forth.

Mr. O'CONNELL. Proration as you understand it, and as it is practiced today—can that be used as a practical matter to prevent in general the uneconomic drilling of wells, or is it rather a device which lends itself better to controlling the amount produced by any given number of wells?

Mr. DeGOLYER. I think that the regulations of the States differ somewhat on that, but I think that it can be used to prevent the drilling of uneconomic wells.

Mr. Cox. But it didn't prevent it in the East Texas field.

Mr. DeGOLYER. It did not; no, sir. When the development of that field started and when it was at its height, it was still a year or two from determination by the courts as to the validity of the various regulations.

Mr. Cox. But I take it in any new development there must be a certain amount of drilling which may or may not be economic in order to determine the extent of the pool and in order to lay a basis for any system of proration, so isn't it a fact that proration as it is practiced cannot prevent some uneconomic drilling of wells?

Mr. DeGOLYER. It probably cannot prevent all uneconomic drilling, but I think that as a practical matter it would prevent uneconomic drilling. Of course, I must admit that I am rather advanced as a theorist on the well-spacing thing. While we are drilling wells now on 40-acre spacing and think that we are showing a great deal of restraint and being very advanced in our techniques, I think that the engineers of 15 or 20 years from now will laugh at us for drilling wells on 1 to 40 acres as much as we do the men back in the Spindletop days who drilled a well to an acre.

Mr. Cox. Would it be fair, Mr. DeGolyer, to say if a proration system merely fixes an allowable for the well and doesn't have some kind of spacing rule of the kind you have been talking about, that it may have the effect of encouraging unnecessary drilling?

Mr. DeGOLYER. It did actually in the East Texas field. That is the reason that you have got the number of wells there that you have.

Mr. BERQUIST. You mean proration tended to increase the number of wells?

Mr. DeGOLYER. Proration at that time was based on the well as the individual unit, and as the number of wells increased and as the amount allowable to each well went down the producer countered by drilling still more wells, and the thing just went on.

There doubtless will be many people who will think that this opinion I have expressed of a well to 40 acres for East Texas, on the theory that it would be operated in a most efficient manner, as a unit operation, let us say, would be ridiculously low, but I don't think there would be many people, even of the ones who objected to my viewpoint, but what would agree that the present density of a well to 5-acre spacing is ridiculously high, and, of course, that is an average over all. In a good many spots there are several wells to an acre.

Mr. Cox. Mr. DeGolyer, the other day after the conclusion of Mr. Dailey's testimony you called my attention to a statement made on page 16 of the mimeographed copy of his statement¹ which you said you would like to have an opportunity to comment on. Do you recall that?

Mr. DEGOLYER. Yes. Mr. Dailey merely states here in this statement that it was reported to him that I had called on some law firm which was representing them and complained to them about their representing him. Mr. Dailey has just been misinformed because I have never called on any law firm nor discussed Mr. Dailey with any of his legal staff.

Mr. Cox. Is there any other comment at this time that you wish to make on any of the statements Mr. Dailey has made?

Mr. DEGOLYER. I think I should like to make some comment. As a matter of fact, it is just as well to take this particular field as any other, to discuss some of these general principles we are trying to arrive at.

The field by determination of the railroad commission has been put on a 40-acre spacing basis. The 40-acre basis didn't fit the land lay-out. Not only was it a misfit so far as Mr. Dailey was concerned but it was a misfit in a number of other places there.

Mr. Dailey was offered, as I understand from him, and as I understood at the time, an opportunity to combine 20 of his acres with 20 acres of the partnership in order to get the 40-acre basis and drill the well. That was done probably in more than a dozen cases within the field. In all of these other cases which I cite but one the land was already under lease, so it was only a combination of the royalty interests, but in the one other case where the land was not under lease, this same combination that was offered to Mr. Dailey was carried through.

I have no other comments to make on this matter, except to say that in my opinion equity was offered to Mr. Dailey, and that this is just one of the type of problems that will recur from time to time in an attempt to produce fields as units.

Mr. Cox. Forgetting about Mr. Dailey for the moment, in any field in which a spacing rule is adopted, isn't one of the problems how to deal with the man who doesn't have the required acreage?

Mr. DEGOLYER. Yes, sir.

Mr. Cox. Because isn't it also true that the spacing rule by itself may to a certain extent impair his bargaining position if he attempts to?

Mr. DEGOLYER. Yes; that is right.

¹ "Exhibit No. 1178," appendix, p. 7520.

Mr. Cox. Certainly as opposed to interests with larger financial resources he is at a disadvantage, as far as bargaining is concerned.

Mr. DEGOLYER. I would say so.

Mr. Cox. Do you have any suggestions as to how that situation might be avoided and at the same time have a spacing rule which would accomplish the conservation end which you described?

Mr. DEGOLYER. I am not too well informed on this. Certain States have permissible pooling agreements and I believe certain other States have forced pooling, but as to the specific question, I think that the equity can be preserved by permissive pooling. That may still leave him at some disadvantage. All landowners and all producers, or many producers, many landowners, are going to be at a disadvantage under any serious attempt at conservation, whether it involves proration or not, if the standard, the thing they think about, is the good old days when they were operating under open-flow conditions.

Mr. Cox. Do you think that disadvantage is just one of the prices we have to pay for conservation?

Mr. DEGOLYER. I think that it is.

Mr. Cox. This morning in the opening part of your statement this sentence occurs: "Current production approximately in balance with consumption is $1\frac{1}{4}$ billion barrels annually or $31\frac{1}{3}$ million barrels daily." I am not sure what inference if any should be drawn from the phrase "approximately in balance with consumption." Do you mean that that is all the oil that could be consumed?

Mr. DEGOLYER. No; I don't mean anything more than I say. That particular part was simply an attempt to make a factual presentation of the oil industry as I saw it and there is nothing hidden in the phrases as far as I know. It is approximately in balance at that rate. It is merely an attempt to express the magnitude of the problem.

Mr. Cox. You don't mean by that if one and one-half billion barrels annually were produced that they wouldn't be consumed.

Mr. DEGOLYER. I certainly do not.

Mr. Cox. You simply mean that the one and one-fourth that are produced are consumed.

Mr. DEGOLYER. More or less; yes, sir.

Mr. Cox. You have owned oil wells and sold crude oil, haven't you?

Mr. DEGOLYER. Yes, sir.

Mr. Cox. Whom do you sell it to?

Mr. DEGOLYER. Do you mean at the present time?

Mr. Cox. Yes.

Mr. DEGOLYER. Well, I don't know exactly who it is, but I think I sell it mostly to smaller independents. I am not sure but what one of them is this Southport that Mr. Travis was formerly with.

Mr. Cox. You don't sell any crude oil to the large integrated companies?

Mr. DEGOLYER. No, I don't; not any operation which I direct myself.

Mr. Cox. Do any of the operations in which you have a substantial interest sell to them?

Mr. DEGOLYER. I believe I still have some contingent interests in the Old Ocean field and I believe that some oil is sold by them to

the Pan-American. I can't be certain about that. I think that is the case.

Mr. Cox. Mr. Brown testified here the other day¹ that in his opinion the economic position was such that there could be no real bargaining between the buyers of crude oil and the independent operators who were selling it. Do you agree with that estimate of the situation?

Mr. DeGOLYER. Well, to my great regret I was forced into bargaining to sell to the Southport. The bigger companies didn't need my oil, I mean they had a posted price, but they were also securing all of the oil that they required at that posted price, so there was no room for a connection for me and I had to go right straight to bargaining.

Mr. Cox. You mean they posted a price but they wouldn't buy your oil at that price? Is that right?

Mr. DeGOLYER. Well, I take it that the posted price is the company's bid for oil, and I presume that there is a limitation on the amount. I have always found as a practical matter that there is a limitation on the amount which they are prepared to buy.

PRICE POSTING AND QUESTION OF PRICE LEADERSHIP

Mr. Cox. What has been your experience as to the way prices of crude oil behave? Is there a system of price leadership in the oil field?

Mr. DeGOLYER. Well, I really don't know exactly what you mean by price leadership.

Mr. Cox. I will put it this way. Is there a tendency for all of the buyers to follow the prices posted by one or two of the leading or larger companies?

Mr. DeGOLYER. I think that there is. There is a tendency for all the price postings to go together, if that is what you mean; sometimes there is one company that is the leader, sometimes it is another leader, if you mean making the initial change at the time of change.

Mr. Cox. Take a period of 5 years in your observation. How many different leaders have there been in a single field in that period?

Mr. DeGOLYER. Well, I can't really say. I should imagine it would be a matter of four or five or six companies.

Mr. Cox. In your experience the leadership shifts from one to another at, say, the rate of about one a year? Is that right?

Mr. DeGOLYER. No; I wouldn't say that. I mean after all—

Mr. Cox (interposing). I am taking it on an average.

Mr. DeGOLYER. That implies some degree of rotation. I don't remember that the matter has ever been put to me before, and while I am trying to follow you as well as I can, I am guessing that it is a half dozen different companies, I remember that it isn't always the same company that raises or lowers the price, I can't go far enough to say that it is some specific fixed rate or in a changing order. I don't know about that.

Mr. Cox. You sell crude oil in the Old Ocean field, don't you?

Mr. DeGOLYER. No. I was a partner in the enterprise. The management was Harrison-Abercrombie, and crude oil was sold for my account.

¹ *Supra*. p. 7306 et seq.

Mr. Cox. How long was that sale made?

Mr. DeGOLYER. Oh, up to the time that I traded out of my position in the Old Ocean field, I would say that it had been going on about 5 years or so in varying amounts.

Mr. Cox. Who were the price leaders in that field?

Mr. DeGOLYER. Well, there weren't any. We sold that oil by negotiation.

Mr. Cox. Was that all sold to independent refiners?

Mr. DeGOLYER. Until quite recently I believe practically all of it was sold for export or to independent refiners or in some fashion of the sort.

Mr. Cox. Going back to the question I started with, then, I take it that you don't accept Mr. Brown's statement with respect to the bargaining power in the sale of oil. You think you have some bargaining power. Is that right?

Mr. DeGOLYER. Well, I have answered that to my great regret I have been compelled to exercise bargaining power.

Mr. Cox. Have you ever sold any crude oil above the posted price?

Mr. DeGOLYER. Companies of which I have had the management have.

Mr. Cox. You mean companies in which you have had an interest?

Mr. DeGOLYER. Yes; companies which were under my management but where I had a minor interest. We have jumped from properties in which I have a major interest, so to say, to companies—I am saying that companies which I have managed, in which I had some interest, have sold oil at above the posted price.

Mr. Cox. Have any of the companies in which you have had a major interest ever sold oil above the posted price?

Mr. DeGOLYER. They have not to my knowledge.

The CHAIRMAN. When you speak of having been forced to bargain in this particular instance, did you get less or more than the posted price?

Mr. DeGOLYER. I got less.

The CHAIRMAN. Don't you think that Mr. Brown meant that the independents had no bargaining power in the sense that they had to take what was offered to them at the posted price or else take something lower?

Mr. DeGOLYER. Yes; I think that is probably what he meant.

The CHAIRMAN. Is that true?

Mr. DeGOLYER. At the present time I think that it is true. At the present time we are in a buyer's market, there is no doubt about it, and at the time to which I refer we were in a seller's market, when we got premiums.

The CHAIRMAN. Isn't that the inevitable result of the condition which you described this morning when you said that on a net basis approximately one-third of the Nation's reserves are owned by the so-called old Standard companies and that one-fifth are owned by the 10 principal independents, bearing in mind that you defined independents as meaning merely those companies which were not affiliated with the old Standard group. Isn't it an inevitable result that when one-third plus one-fifth of all the Nation's oil reserves, which is more than one-half, are controlled by the Standard companies and 10 so-called independents, that the small independent is necessarily compelled to take what he can get?

Mr. DEGOLYER. The small independent, yes; I mean strictly speaking that is true, but as a small independent——

The CHAIRMAN (interposing). Of course, that is the gist of all the complaint that is made to Congress by the independent producer, that the so-called majors have fallen or come into such position in the industry that they can fix the price of oil and that they do fix the price of oil. Sometimes it is alleged that this is done by the mere practice of price leadership; sometimes, not very frequently I am frank to say, it is alleged that it is done by agreement in combination, but obviously it isn't necessary to have an agreement to control the price of oil when so large a proportion of the reserves of the Nation are controlled by so small a group of companies.

Mr. DEGOLYER. Well, my feeling with regard to this matter, from the standpoint of a producer, is that certainly I have no desire to have to bargain on my oil, negotiate my oil. I am much better off, in my own opinion, under the posted-price system. Now I might object, I might feel that the posted price was too low, or something of that sort, but under the system which brings the world's market to my well wherever I drill it, within reason, I haven't got any objection to that. As a matter of fact, I like it.

The CHAIRMAN. Well, this posted-price system of which you speak is so organized that one of six companies is constantly in the position of fixing the price that is paid for crude, and you as an independent take that price and like it.

Mr. DEGOLYER. That is right.

Mr. Cox. You don't know anything about what factors go into making up that price, do you?

Mr. DEGOLYER. Well, suppose that I just give you two of my own experiences.

Mr. Cox. All right; go ahead.

Mr. DEGOLYER. What I wanted to say is this: I have followed price with considerable interest for 20-odd years, and it has never seemed a very mysterious thing to me. I have heard these questions asked and nobody seemed to be able to answer them. Well, I can't answer them myself, but it seems somebody ought to be able to answer them. I have understood price changes, or thought that I understood them, enough times to believe that they weren't entirely arbitrary and that there was reason behind them. For example, during the twenties, the time to which I refer when we were on a seller's market, operating in Oklahoma, the independent refiners who had neither the financial backing nor the storage to enable them to buy their oil over the whole 12 months, would come into the market along in January in order to contract their crude in anticipation of the summer gasoline consumption season, and we always got premiums. We could almost tell from the amount of the demand for crude as evidenced by these premiums that there would be an increase in the posted price within a short time, and it usually happened. That was one reason, at any rate, why price went up. This recent time, when I couldn't get a connection with the major companies for oil which I had to sell and had to go out and negotiate it and had to sell it at a lower price, if that condition should become very general, I don't see how the major companies themselves could support a higher price. It seems reasonably simple to me why the price goes up and why the price goes down.

Mr. AVILDSSEN. When you say you received premiums, and you sold below the posted price, were all those transactions with independent companies?

Mr. DEGOLYER. Generally speaking, yes.

Mr. AVILDSSEN. Sometimes the independent paid you more than the posted price; sometimes he paid you less?

Mr. DEGOLYER. That is right; dependent upon whether or not it was a buyer's or a seller's market. I believe that premiums are very seldom paid by the major companies, though we have received premiums from a major company.

Mr. AVILDSSEN. How great were these premiums, in percentage?

Mr. DEGOLYER. A matter of, on the down side, 5 or 6 cents below the posted price. Incidentally, these premiums are always based on somebody's posted price, and as far as the premiums are concerned, in the early twenties I believe we received a 65-cent premium on \$3.50 oil, making \$4.15 in all.

Mr. AVILDSSEN. Have you received any premiums in recent years?

Mr. DEGOLYER. No, sir.

Mr. AVILDSSEN. How long ago was the last premium?

Mr. DEGOLYER. Certainly there haven't been any premiums paid I should say since the late twenties.

Mr. Cox. What do you think caused the drop in the price of crude oil in August of this year?

Mr. DEGOLYER. I suppose that the drop of crude oil in August of this year came about by the fact that there was a tremendous overproduction, or a tremendous production at any rate, in the State of Illinois, a large part of which was finding its way to the market at 20, 30, and 35 cents under parity prices.

The CHAIRMAN. How do you explain the complaints which are so frequently received from small producers?

Mr. DEGOLYER. Well, we always like to get more than we are getting. It is practically an article of faith with us that the oil is worth more than we are being paid for it.

The CHAIRMAN. Is that alone the reason for it?

Mr. DEGOLYER. No; I should think not. I don't know—undoubtedly men have really just grievances. I felt pretty aggrieved when I couldn't get a connection for my oil, because the State commission was prorating to market demand and I was allowed to produce two-thousand-odd barrels a day under the proration laws of the State, and if they were prorating to market demand and they counted my addition to the pot, I felt pretty much annoyed because I couldn't find a connection. I did finally make arrangements so I suppose they were right and I was wrong.

The CHAIRMAN. Is there anything in your opinion that this committee could recommend to Congress that would tend to eliminate that basis for these complaints, if there is a basis? Can we do anything to help the independent, the small producers, in other words? You think he is in pretty bad position.

Mr. DEGOLYER. I regret to say, Senator, that I don't think you can help him any.

Mr. Cox. Mr. DeGolyer, that drop that took place in August was a 20-cent drop, wasn't it, that took place overnight?

Mr. DEGOLYER. I believe it was. They mostly take place overnight.

Mr. Cox. Isn't that rather a substantial decrease in price to take place that abruptly in a normal competitive market?

Mr. DEGOLYER. The oil market especially when it goes down usually takes big steps, shorter ones as it goes up.

Mr. Cox. Yes; that is peculiar. Do you have any opinion as to why that condition exists? It isn't a thing you would expect, is it, if you have a market in which there are thousands of people selling and a smaller but still a large number of people buying, wouldn't you expect normal bargaining to mean that there would be less gradual decreases?

Mr. DEGOLYER. Well, I don't really know; I don't know enough about the technique to be able to answer your question. It has always seemed to me, in which I may be wrong, but in trying to understand this same question that you now raise, if the market were subject to daily fluctuations or to fluctuation over very short periods of time, I think that it would be a much more delicately adjusted market and that the moves would be smaller, but for some reason or other the market seems to move very seldom and when it does it usually moves in big chunks. I don't think 20 cents was anything outstanding in the change in the oil market.

Mr. Cox. It is a pretty substantial drop.

Mr. DEGOLYER. It is a substantial amount, but over a period of 20 years we have seen it cut many times 20 cents, 25, and I think even in the adjustment after the war period I think possibly there were cuts of as much as 50 cents. If there weren't, the 25-cent cuts were coming awfully close together.

Mr. Cox. Of course the market is reported daily, isn't it? There are transactions going on daily.

Mr. DEGOLYER. I don't think that there are enough transactions for crude to really make a market if you mean by that trading, bidding, and asking and selling, in volume enough to be reported daily. The markets are reported weekly in the trade journals, but the principal crude market is simply the posted price of the various companies.

Mr. Cox. You mean these reports in the trade journals don't really represent sales?

Mr. DEGOLYER. Certainly they represent sales, but not of this type that we are talking about, not sales that are being negotiated for small amounts.

Mr. Cox. Do you mean they represent only sales of large amounts?

Mr. DEGOLYER. Did you ask me about the posted prices that are published in the oil journals?

Mr. Cox. Yes. You shocked me a moment ago because you said that the posted price of crude oil as published in the oil journals was just a posted price, and I got the inference from your statement that you thought those reports didn't indicate that there were any transactions at those prices.

Mr. DEGOLYER. Quite to the contrary. I think practically all the dealing is on that basis.

Mr. Cox. All right; then we can start from that. That means there are these weekly sales of oil. Is that right?

Mr. DEGOLYER. The sales are daily.

Mr. Cox. All right; that is better yet. There are daily sales of crude oil, so that we can dismiss this idea that the transactions are so few and far between or that they cannot be considered in explaining why the decreases are so abrupt, can't we?

Mr. DeGOLYER. Certainly; but these daily sales of crude oil that you are talking about are the type of sale—well, the comparison is not quite exact but somewhat like the rental of a house; it is not that every morning you sit down and say, "Well, now, we are going to trade out. What is the price of oil this morning?" The company posts the price at which it will buy oil from connections which it has established already.

Mr. Cox. And oil is sold at that price?

Mr. DeGOLYER. And oil is sold at that price, but as the well produces.

Mr. Cox. That still leaves us, doesn't it, Mr. DeGolyer, without any very adequate explanation as to why these drops should be so substantial and so abrupt, and particularly inasmuch as you say that the drops are always abrupt and substantial but the increases are gradual.

Mr. DeGOLYER. Perhaps that has been because within my recent experience we have been in a buyers' market.

Mr. AVILDSSEN. Did this 20-cent drop take place all over the country or in one particular field or State?

Mr. DeGOLYER. I regret to say that, being off on a vacation, I don't know just exactly how widespread it was, but it certainly covered the State of Texas.

Mr. AVILDSSEN. Do you know whether it dropped 20 cents in all other markets?

Mr. DeGOLYER. No; I don't.

Mr. AVILDSSEN. Do you know whether there had been a gradual decline in the price in other fields prior to the precipitant drop in Texas?

Mr. DeGOLYER. No; I don't know whether there had. I am under the impression that in Oklahoma and Kansas there hadn't been. The Illinois market was a sort of chaotic affair anyhow, due to the rapidly mounting production. Under wide-open flow part of the oil was being sold at the posted price and part of it was being sold at a price which the company said they would pay for oil that they didn't really want but would take if you had to sell it, and part of it was being sold by open trading at prices even below that.

Mr. AVILDSSEN. In other words, there was no fixed price all over the country prior to this drop of 20 cents; there had been trading below the posted price for some time prior to a drop in the posted price?

Mr. DeGOLYER. I think the thing is best stated, for both of our purposes, if we will say that there had been underselling in Illinois in large quantities, underselling the comparative price. I mean, you got transportation and different qualities in crude involved in these, but I think that it was a case that it had reached substantial proportions.

Mr. AVILDSSEN. In other words, there wasn't overnight a drop of 20 cents in the market price of the commodity; the market price had actually been a different figure when you average it up for the whole country against one particular State.

Mr. DeGOLYER. Well, I presume that was true, but certainly the 20-cent drop which came overnight was a drop that came about after a considerable period of growing pressure on the price structure by this oil which was being sold under a comparative market.

Mr. Cox. There was a drop in the posted price in all fields overnight.

Mr. DEGOLYER. There was?

Mr. Cox. That is your understanding?

Mr. DEGOLYER. I said I really didn't know about it, but I was quite sure about it.

Mr. Cox. I don't want you to take the fact from me.

Mr. AVILDSSEN. My point is, if you averaged the prices prevailing in Illinois, which were gradually declining, with the prices throughout the country, you didn't have a case where the price through the country was up here and suddenly dropped down. You see what I mean, Mr. Cox?

Mr. Cox. I understand that. I was thinking primarily of the price of Texas, Oklahoma, and Kansas, and I understand from his testimony that there the price, at least the posted price, did abruptly drop overnight.

How much oil moved at prices below the posted price even in those fields I don't know. Do you have any opinion on that?

Mr. DEGOLYER. No; I have no opinion on it. I think that as far as Texas was concerned only minor amounts moved under the posted price. As far as Oklahoma and Kansas were concerned I doubt whether much moved under the posted price, if any, there, but the real pressure on the market was the Illinois situation, where very substantial amounts of oil did move at considerably below the posted price.

Mr. Cox. Are these sales above or below the posted price reported anywhere publicly?

Mr. DEGOLYER. I don't think that they are; no.

Mr. Cox. There is no way of telling, for example, how much oil is being sold in Illinois, over the posted price in those fields, except by an examination of the records of the purchasers, I suppose.

Mr. DEGOLYER. That would be the only method.

The CHAIRMAN. Are there any other questions?

(None.)

Mr. DeGolyer, we are very much indebted to you. We are sorry to have kept you on the stand so long.

Mr. DEGOLYER. It has been a very great pleasure.

The CHAIRMAN. Mr. Thompson has very kindly consented to postpone his testimony until next week, so the committee will not have a session this afternoon. It will convene at 10:30 on Monday morning. The witnesses for Monday are to be Mr. John E. Shatford, of El Dorado, Ark.; Mr. Robert C. Knox, of El Dorado, Ark., and Mr. Fayette B. Dow, attorney for the National Petroleum Association.

The committee will now stand in recess. Let me say that a press conference is to be held in this room immediately, so that newspapermen are invited to remain.

(Whereupon, at 1 p. m., an adjournment was taken until Monday, October 2, 1939, at 10:30 a. m.)

(Testimony on the Petroleum Industry is resumed in Hearings, Part 15.)

APPENDIX

EXHIBIT No. 1136

LIST OF COMPANIES TO WHICH QUESTIONNAIRES WERE SENT BY THE TEMPORARY NATIONAL ECONOMIC COMMITTEE

1. Atlantic Refining Co. (The), 260 So. Broad St., Philadelphia, Pa.
2. Cities Service Co., 60 Wall Street, New York, N. Y.
3. Consolidated Oil Corp., 630 Fifth Avenue, New York, N. Y.
4. Continental Oil Co., Ponca City, Oklahoma.
5. Gulf Oil Corp. of Pennsylvania, Gulf Building, Pittsburgh, Pa.
6. Mid-Continent Petroleum Corp., Cosden Building, Tulsa, Okla.
7. Ohio Oil Co. (The), Findlay, Ohio.
8. Phillips Petroleum Co., Bartlesville, Oklahoma.
9. Pure Oil Co. (The), 35 E. Wacker Drive, Chicago, Ill.
10. Shell Union Oil Corp., 50 W. 50th St., New York, N. Y.
11. Skelly Oil Co., Skelly Building, Tulsa, Okla.
12. Socony-Vacuum Oil Co., 26 Broadway, New York, N. Y.
13. Standard Oil Co. of California, 225 Bush St., San Francisco, Calif.
14. Standard Oil Co. (Indiana), 910 So. Michigan Ave., Chicago, Ill.
15. Standard Oil Co. (New Jersey), 30 Rockefeller Plaza, New York, N. Y.
16. Standard Oil Co. (Ohio), Midland Bldg., Cleveland, Ohio.
17. Sun Oil Co., 1608 Walnut St., Philadelphia, Pa.
18. Texas Corporation (The), 135 E. 42nd St., New York, N. Y.
19. Tide Water Associated Oil Co., 17 Battery Place, New York, N. Y.
20. Union Oil Co. of California, 7th & Hope Sts., Los Angeles, Calif.
21. Amerada Corporation, 100 W. 10th St., Wilmington, Del.
22. American Republic Corp. (The), Petroleum Bldg., Houston, Texas.
23. Ashland Oil & Refining Co., Ashland Oil & Ref. Bldg.; Ashland, Ky.
24. Atlas Pipe Line Co., 719 Market St., Shreveport, La.
25. Barnsdall Oil Co., 120 Broadway, New York, N. Y.
26. Barnsdall Refining Co., Petroleum Bldg., Tulsa, Okla.
27. Bell Oil & Gas Co., Tulsa, Oklahoma.
28. Chalmette Petroleum Corp., American Bank Bldg., New Orleans, La.
29. Champlin Refining Co., Enid, Oklahoma.
30. Cosden Petroleum Corp., 1700 Electric Bldg., Fort Worth, Tex.
31. Crown Central Petroleum Corp., American Bldg., Baltimore, Md.
32. Danciger Oil & Refining Co., Hunt Building, Tulsa, Okla.
33. Eastern States Petroleum Co., Inc., 630 Fifth Ave., New York, N. Y.
34. East Texas Refining Co., Tower Petroleum Bldg., Dallas, Texas.
35. General American Oil Co. of Texas, Republic Bank Bldg., Dallas, Texas.
36. Hickok Oil Corporation, 2313 Madison Avenue, Toledo, Ohio.
37. Houston Oil Co. of Texas, Petroleum Bldg., Houston, Texas.
38. Kendall Refining Co., Bradford, Pennsylvania.
39. Lion Oil Refining Co., El Dorado, Arkansas.
40. National Refining Co., Hanna Bldg., Cleveland, Ohio.
41. Plymouth Oil Co., Benedum-Trees Bldg., Pittsburgh, Pa.
42. Quaker State Oil Refining Corp., 11 Center Street, Oil City, Pa.
43. Republic Oil Refining Co., Benedum-Trees Bldg., Pittsburgh, Pa.
44. Richfield Oil Corp., 555 So. Flower St., Los Angeles, Cal.
45. South Penn Oil Co., Chamber of Commerce Bldg., Pittsburgh, Pa.
46. Southport Petroleum Co., Kilgore, Texas.
47. Standard Oil Co. (Kentucky), 426 W. Bloom Ave., Louisville, Ky.
48. Standard Oil Co. (Nebraska), Standard Oil Bldg., 504 S. 18th St., Omaha, Nebraska.
49. Valvoline Oil Co., Fifth & Butler St., Cincinnati, Ohio.

The answers to the questionnaire, a voluminous record of statistical data, are on file with the committee.

EXHIBIT No. 1320¹

COMPANIES ANSWERING QUESTIONNAIRE FOR OIL COMPANIES

Atlantic Refining Co. (The).....	260 So. Broad St., Philadelphia, Pa.
Cities Service Co.....	60 Wall St., New York, N. Y.
Empire Gas & Fuel Co.....	Bartlesville, Okla.
Arkansas Fuel Oil Co.....	Shreveport, Louisiana.
Cities Service Oil Co. (Pa.).....	Philadelphia, Pennsylvania.
Consolidated Oil Corp.....	630 Fifth Ave., New York, N. Y.
Continental Oil Co.....	Ponca City, Oklahoma.
Gulf Oil Corp of Pa.....	Gulf Building, Pittsburgh, Pa.
Ohio Oil Co. (The).....	Findlay, Ohio.
Phillips Petroleum Co.....	Bartlesville, Okla.
Pure Oil Co. (The).....	35 E. Wacker Drive, Chicago, Ill.
Shell Union Oil Corp.....	50 W. 50th St., New York, N. Y.
Skelly Oil Co.....	Skelly Bldg., Tulsa, Okla.
Socony-Vacuum Oil Co., Inc.....	26 Broadway, New York, N. Y.
Standard Oil Co. (Indiana).....	910 So. Michigan Ave., Chicago, Ill.
Standard Oil Co. (New Jersey)---	30 Rockefeller Plaza, New York, N. Y.
Standard Oil Co. (Ohio).....	Midland Bldg., Cleveland, Ohio.
Sun Oil Co.....	1608 Walnut St., Philadelphia, Pa.
Texas Corp. (The).....	135 E. 42nd St., New York, N. Y.
Tide Water Associated Oil Co.....	17 Battery Pl., New York, N. Y.
Union Oil Co. of California.....	7th & Hope Sts., Los Angeles, Calif.
Amerada Corp.....	100 W. 10th St., Wilmington, Del.
American Republics Corp. (The)---	Petroleum Bldg., Houston, Tex.
Ashland Oil & Refining Co.....	Ashland Oil & Refg. Bldg., Ashland, Ky.
Barnsdall Oil Co.....	120 Broadway, New York, N. Y.
Barnsdall Refining Co.....	Petroleum Bldg., Tulsa, Okla.
Chalmette Petroleum Corp.....	American Bank Bldg., New Orleans, La.
Champlin Refining Co.....	Enid, Okla.
Cosden Petroleum Corp.....	1700 Electric Bldg., Ft. Worth, Tex.
Danciger Oil & Refining Co.....	Hunt Bldg., Tulsa, Okla.
Hickok Oil Corp.....	2313 Madison Ave., Toledo, Ohio.
Houston Oil Company of Texas.....	Petroleum Bldg., Houston, Tex.
Kendall Refining Co.....	Bradford, Pennsylvania
Lion Oil Refining Co.....	El Dorado, Arkansas
National Refining Co.....	Hanna Bldg., Cleveland, Ohio
Plymouth Oil Co.....	Benedum-Trees Bldg., Pittsburgh, Pa.
Quaker State Oil Refining Corp....	11 Center St., Oil City, Pa.
Republic Oil Refining Co.....	Benedum-Trees Bldg., Pittsburgh, Pa.
Richfield Oil Corp.....	555 So. Flower St., Los Angeles, Cal.
South Penn Oil Co.....	Chamber of Commerce Bldg., Pittsburgh, Pa.
Standard Oil Co. (Kentucky).....	426 W. Bloom Ave., Louisville, Ky.
Standard Oil Co. (Nebraska).....	Standard Oil Bldg., Omaha, Nebraska.
Valvoline Oil Co.....	Fifth & Butler Sts., Cincinnati, Ohio.
Bell Oil & Gas Co. (The).....	Tulsa, Okla.

EXHIBIT No. 1137

TEMPORARY NATIONAL ECONOMIC COMMITTEE
Washington, D. C.

QUESTIONNAIRE FOR OIL COMPANIES

1. Correct corporate name of reporting company, with date and state of incorporation and location of principal office.
2. Is reporting company a holding company or an operating company, or both, and the character of the business in which it is engaged.
3. A list containing the names and addresses of the 100 largest common stockholders, corporate and individual, as of December 31, 1938, and the number of shares held by each.
 - a. The total number of common stockholders as of December 31, 1938.

¹ Introduced in Hearings, Part 17; printed at this point in connection with "Exhibits Nos. 1136 and 1137."

4. Names and addresses of the present officers and directors with the dates of their election or appointment and the salaries, commissions, and bonuses paid to each of them by the corporation during 1938.
- 5a. The total number of employees, commission agents, etc., employed on an annual basis (excluding officers and directors) and the total salaries paid to them, during each of the years 1936, 1937 and 1938.
- b. The total number of wage earners (not included under 5-a) employed by reporting company and the total wages paid to them in each of the years 1936, 1937 and 1938.

NOTE.—See question 11-j and in the event operations are carried on through subsidiaries and affiliates, report parent company employees and wage earners only here.

6. Two copies of annual reports of the corporation for each of the years 1929 to 1938, both inclusive.
7. The names and addresses of the investment and banking houses through which all issues of stocks, bonds, debentures, or other evidences of indebtedness were underwritten or marketed since January 1, 1936.
8. Submit a statement for the period January 1, 1929 to December 31, 1938, showing:
 - a. Details of any original issue of capital stock indicating the purpose of each issue (If any part of the proceeds was credited to surplus, state such amount.).
 - b. Any restatements of capital stock stating the amounts of such restatements, the purpose of such restatements, and the entries made at the time of each restatement.
9. Submit an analysis of each surplus account for the period January 1, 1929 to December 31, 1938, indicating for each year the following items:
 - a. Balance (or balances) at beginning of period as per accounts
 - b. Net income or loss from profit and loss statements
 - c. Other additions to surplus—specify
 - d. Charges to surplus—specify
 - e. Dividends—state rate and amount on each class of stock
 - (1) Cash
 - (2) Stock
 - f. Balance (or balances) at close of period
10. Submit a schedule or statement for the period January 1, 1929 to December 31, 1938, indicating for each year:
 - a. The dividends paid per share on each class of stock and the sum of dividends so paid
 - b. The method of payments, i. e., whether in cash, stock, or otherwise
 - c. If dividends were paid in stock, state the exact account charged and the dollar amount per share at which such dividend stock was so charged.
11. Lists of subsidiaries, affiliates, and all companies in which the reporting company, its subsidiaries or affiliates, held any capital stock, preferred stock, or bonded indebtedness as of December 31, 1938; this includes foreign subsidiaries and affiliates as well as domestic; in respect to each of the companies listed, it is desired that the following be shown:
 - a. Name of company
 - b. Address of company
 - c. Place and date of incorporation
 - d. Date of acquisition of interest
 - e. Detailed statement as to the nature of the business conducted, where conducted, and description of the commodities manufactured or handled or services rendered
 - f. Nature of the interest owned by reporting company
 - g. The number of shares of voting stock of company so reported now outstanding
 - h. Number of voting shares owned or controlled by the reporting company
 - i. Reason for acquiring interest in such company
 - j. The names and addresses of the present officers and directors and the salaries, commissions, and bonuses paid to each of them during 1938 (Note: As regards those companies in which the reporting company has less than a 25% controlling stock interest, the answer to this question is not desired.).

- k(1) An analysis of net investment and net income for domestic companies engaged in any branch of the petroleum industry as follows:

NOTE.—In the event the reporting company does not operate through subsidiaries and affiliates this question should be answered for the various branches of the industry in which the reporting company is engaged.

Net investment (capital stock and surplus) and net income (after deduction of depreciation, depletion and dividends on preferred stock, etc., but prior to payment of common dividends) for the year 1938 in the following branches of the industry:

Production—including natural gasoline operations

Transportation—with break-down as to (a) crude oil gathering lines, (b) crude oil trunk lines, (c) gasoline pipe lines, and (d) marine transportation operations

Refining

Marketing

- (2) For companies engaged in foreign operations, it will be sufficient to report total net investment and total net income without the break-down as to the branches of the industry.
 - (3) Two copies of the annual reports of all subsidiaries and affiliates in which reporting company had 25% or more controlling stock interest for each of the years 1929-1938, both inclusive.
2. Statements showing:
- a. The total acreage of domestic oil lands held by the reporting company and its subsidiary and affiliated companies as of the last day of the years 1929 to 1938, both inclusive; together with a break-down showing the acres owned in fee, acres leased, whether producing or non-producing.
 - b. For the year 1938 alone the acres owned in fee and leased, broken down as to states and oil fields, together with an estimate of the oil reserves of each field covered by such acreage and the percentage such reserves bear to the total estimated reserves of the field.
 - c. The total acreage of foreign oil lands held by reporting company and its subsidiary and affiliated companies as of December 31, 1938, together with the acreage held in each country; an estimate of the oil reserves of each country covered by such acreage with the percentage such reserves bear to the total estimated reserves of the country; and reporting company's production in each country for the year 1938.
13. The number of domestic producing wells owned or operated by the reporting company and its subsidiaries and affiliates in each state for each of the years 1929 to 1938, both inclusive.
14. A statement showing the total quantities of crude petroleum (in 42 gal. bbls.): (a) produced in United States, by states, (b) purchased, (c) imported, (d) exported, and (e) sold by the reporting company and its subsidiaries and affiliates during each of the years 1929 to 1938, both inclusive. Transactions with and between subsidiaries and affiliates not to be duplicated.
15. Statement showing domestic crude petroleum storage capacity and stocks of crude petroleum on hand by the reporting company and its subsidiaries and affiliates on January 1 of each of the years 1929 to 1938, both inclusive.
16. With respect to crude oil pipe lines, both intrastate and interstate, a statement showing the following for each of the years 1929 to 1938, both inclusive:
- a. Total number of miles of gathering line owned and operated on January 1 of each year
 - b. Total number of miles of trunk line owned and operated on January 1 of each year
 - c. Total quantity of crude oil transported through such gathering and trunk lines, separately
 - d. The total barrel-miles of operation for trunk lines
 - e. What proportion of crude oil transported in the pipe lines (as given in answer to 16-c) was for consumption by the reporting company, its subsidiaries and affiliates?

- f. The net investment in crude oil pipe lines on December 31 of each year (segregated as to gathering and trunk lines)
- g. The net income from crude oil pipe lines for each of the years (segregated as to gathering and trunk lines)
- h. Copies of annual statements of the subsidiaries or affiliates of reporting company engaged in crude oil pipe line operations
17. Statement showing the number of barrels of crude petroleum run to stills in each domestic refinery owned and operated by the reporting company and its subsidiaries and affiliates during each of the years 1929 to 1938, both inclusive.
18. A statement showing the total quantities of gasoline, including natural gasoline used in blending, (in 42 gal. bbls.) for consumption as motor fuel, (a) manufactured, (b) purchased, (c) sold, (d) imported, and (e) exported, (separately) by the reporting company and its subsidiaries and affiliates during each of the years 1929 to 1938, both inclusive.
19. With respect to gasoline pipe lines, both intrastate and interstate, a statement for the reporting company and its subsidiaries and affiliates showing the following for each of the years 1929 to 1938, both inclusive:
 - a. Total number of miles of gasoline pipe line operated on January 1 of each year
 - b. The principal terminals of such gasoline pipe lines
 - c. The total quantity of gasoline transported through such lines, with the quantities delivered to each of the principal terminals
 - d. The total barrel-miles of operation
 - e. What proportion of gasoline transported in gasoline pipe lines (as given in answer to 19-c) was owned and sold by the reporting company?
 - f. The net investment in gasoline pipe lines on December 31 of each year
 - g. The net income from gasoline pipe lines for each of the years
 - h. Two copies of annual statements of the subsidiaries and affiliates of reporting company engaged in gasoline pipe line operations
 - i. The average cost per barrel-mile for gasoline transported through such lines for each year.
20. A statement defining the *present* domestic marketing territory of the reporting company, its subsidiaries and affiliates, that is, the states in which sales, wholesale and retail, are made by means of tankers, barges, tank cars, pipe lines, bulk plates and/or service stations itemized by states (Submit map of marketing territory).
21. Statement showing the number of domestic bulk plants and service stations (separately) owned, leased, operated, controlled and/or used as *exclusive* outlets by the reporting company and its subsidiaries and affiliates on the last day of each of the years 1929 to 1938, both inclusive, itemized as to the number in each state.
22. The following information on domestic service stations:
 - a. The number of service station operator-managers on the payrolls of the reporting company, its subsidiaries and affiliates on June 30 and December 31 of each of the years 1935, 1936, 1937 and 1938.
 - b. The total number of service station employees on the payrolls of the reporting company, its subsidiaries and affiliates on June 30 and December 31 of each of the years 1935, 1936, 1937 and 1938.
23. Tabulation showing the following information for each of the years 1929 to 1938, both inclusive:
 - a. The number of new service stations built by the reporting company, its subsidiaries and affiliates
 - b. The number of service stations acquired (1) by purchase, (2) by lease
 - c. The number of service stations sold
 - d. The number of service stations abandoned
 - e. The number of service stations leased to operators handling the supplies of the reporting company exclusively (including stations reported under b-(2) above)
24. Statement of total domestic sales of gasoline by reporting company, its subsidiaries and affiliates, for each of the years 1935, 1936, 1937 and 1938, by states (in 42 gal. bbls.). Transactions with and between subsidiaries and affiliates not to be duplicated.
25. Analysis of total domestic sales of gasoline by reporting company, its subsidiaries and affiliates, for each of the years 1935, 1936, 1937 and 1938, showing the percentages of sales by the following methods of operation

(Transactions with and between subsidiaries and affiliates not to be duplicated):

- a. Sales to major company competitors irrespective of method of delivery
 - b. Tank car and truck sales to jobbers
 - c. Tank car sales to commercial consumers
 - d. Tank car sales to retail distributors
 - e. Tank wagon sales to uncontrolled service station operators
 - (1) independent operators
 - (2) leased by reporting company to operator
 - f. Tank wagon deliveries to company controlled and operated retail outlets
 - g. Tank wagon deliveries to commercial consumers
 - h. Sales and deliveries to customers not classified above—specify types of customers
26. A statement showing the quantities of gasoline (ready for consumption as motor fuel) sold in the United States by the reporting company, its subsidiaries and affiliates, for each of the years 1929 to 1938, both inclusive, to which was added tetra-ethyl lead, purchased from the Ethyl Gasoline Corporation, irrespective of the quantity of such fluid used in blending.
27. A statement relative to domestic sales by reporting company, its subsidiaries and affiliates for each of the years 1936, 1937 and 1938.
- a. Total net value of sales of petroleum products, irrespective of type of sale and class of customer.
 - b. Total net value of sales of merchandise, other than petroleum products, irrespective of type of sale and class of customer.
 - c. Total purchase price of merchandise, other than petroleum products, reported in 27-b.
 - d. Total net value of sales of equipment (pumps, tanks, lifts, compressors, etc.) ordinarily used in operation of bulk plants and service stations in the industry.
28. Copies of each of the types of contracts used by the reporting company, its subsidiaries and affiliates, in effect on January 1, 1939 in its contractual dealings with tank car buyers, commission agents, jobbers, service station operators, and commercial consumers for the distribution and sale of gasoline.
29. Detailed statement of freight rate basing points or other bases used by the reporting company, its subsidiaries and affiliates, in determining gasoline sales prices for tank car delivery, tank wagon delivery, and service station sales. Explain the relationship of the location of your refineries to such basing points. Where the reporting company uses more than one basis for arriving at prices because of marketing territory considerations, it is desired that you submit the calculations for typical destinations illustrating the manner in which the different bases are applied. To what extent have these price basing methods been modified to meet the development of the more economical means of transportation, i. e., pipe lines, tankers, motor trucks, etc.?
30. Submit a statement showing an analysis of the total liabilities, capital stock, and surplus of (a) the reporting company, and (b) the reporting company and its subsidiaries on a consolidated basis, as of December 31 of each of the years 1924 to 1938, both inclusive, showing the following items:
- a. Capital stock (segregated as to classes of stock)
 - b. Surplus (segregated as to classes of surplus, such as paid-in surplus, capital surplus, earned surplus, etc.)
 - c. Long term liabilities
 - d. Other liabilities
 - e. Reserves (other than valuation reserves)
31. Submit a statement summarizing the operating results of (a) the reporting company, and (b) the reporting company and its subsidiaries on a consolidated basis, for each of the years 1924 to 1938, both inclusive, showing:
- a. Net income before depreciation, depletion and amortization, taxes, and interest
 - b. Depreciation
 - c. Amortization
 - d. Depletion
 - e. Taxes (classified as to income and other taxes)
 - f. Interest on long term debt
 - g. Dividends on stocks other than equity stocks
 - h. Dividends on equity stocks

32. Summary cost statement for each domestic refinery operated (a) by the reporting company, or (b) by its subsidiaries or affiliates, for the year 1938, showing the principal elements of cost determining the cost of a gallon of gasoline and fuel oil (separately), at the refinery gate (exclusive of any selling expenses): Explain briefly the costing policy followed with particular reference to the method of proration of the elements of costs of the refining operations among the various products produced.
33. With regard to all meetings of stockholders of the reporting company held during each of the years 1929 to 1938, both inclusive, submit a statement showing:
- Shares of capital stock voted by stockholders in person
 - Shares of capital stock voted by proxy exercised by company officers and directors
 - Shares voted by proxy exercised by other than company officers and directors
 - Total shares of stock voted by each officer and director at each meeting, both as to personal holdings and by proxy, shown separately.
34. A statement giving specifications for each of the brands and grades of gasoline and/or motor fuel distributed by reporting company and its subsidiaries and affiliates in domestic marketing operations at the present time.

Question 34 rev.

Types of Test (Standard ASTM Methods)	Premium		Regular		Third Grade	
	Win-ter	Sum-mer	Win-ter	Sum-mer	Win-ter	Sum-mer
1. Distillation Test.....						
a. Initial boiling point—°F.....						
b. Temperature at 10% point (recovery).....						
c. Temperature at 50% point (recovery).....						
d. Temperature at 90% point (recovery).....						
e. Maximum End Point—°F.....						
f. Per cent residue.....						
g. Per cent distillation loss.....						
2. Vapor Pressure (Reid) at 100° F., lbs.....						
3. Sulphur Content Test—Total Sulphur Content.....						
4. Gum Content, by Air Jet Method—Mg. per 100 Ml.....						
5. Copper Strip Corrosion Test (3 hrs. at 122° F.).....						
6. a. Octane Number (ASTM).....						
b. Octane Number (L-3).....						
7. Color.....						
8. Doctor Test.....						
9. Trade Name of Gasoline used for Test.....						
10. Gravity—A. P. I.—(range).....						
11. Tetra-ethyl lead content (c. c. per gal.).....						

35. A statement showing the annual budgets for each of the years 1936, 1937 and 1938 allocated by reporting company, its subsidiaries and affiliates for the purposes of technical research.

SUPPLEMENTARY QUESTION

As a supplement to Items 11-K (1) and 11-K(2), submit an analysis of the assets and income of the reporting company and its subsidiaries (on a consolidated basis), classified by branches and departments of the business, for each of the years 1936, 1937 and 1938.

(a) The branches or departments may be classified in substantially the following manner:

- Domestic branches engaged in the petroleum industry, subdivided as follows:
 - Production.
 - Transportation.
 - Refining and manufacturing.
 - Marketing.
 - Other.
- Foreign branches engaged in the petroleum industry.
- Investments in affiliates engaged in the petroleum industry—unconsolidated.

4. General investments.

5. Miscellaneous.

(b) The assets employed in the various branches or departments of the business may be classified in substantially the following manner:

1. Properties, Plant and Equipment.

Less: Reserves for Depreciation, Depletion and Amortization.
Net.

2. Current assets.

3. Non-current security investments.

4. Investments and advances in affiliated companies—unconsolidated.

5. Intangible assets.

6. Deferred charges.

7. Other assets.

(c) The income or revenue for each branch or department of the business may be reported substantially as follows:

1. Gross revenue.

2. Net income before interest and dividends.

(For illustrative purposes, a form with explanations is attached which may be followed by the reporting companies in answering this item.)

INSTRUCTIONS

GENERAL

1. This analysis should be prepared on a consolidated basis.

2. Amounts may be stated in round numbers and may be reported in units of one hundred thousand dollars.

3. If accounting or statistical records are not kept by a company classifying assets and income by branches or departments of the business, reasonable approximations may be made. If such approximations are made, a notation indicating generally the basis used should be filed with this reply.

4. If the assets used or employed by foreign branches engaged in the petroleum industry, are not in excess of 10% of the total consolidated assets, the foreign branches may be combined with the domestic branches.

CLASSIFICATION OF ASSETS USED OR EMPLOYED

The classification of assets used or employed indicated in the form is *suggestive only*. A company may use the general classifications followed in its published reports to stockholders, or in reports filed with the Securities and Exchange Commission.

Valuation reserves should be deducted from the applicable assets. Treasury stock should not be carried as an asset.

The total assets reported should agree with the total assets in the consolidated balance sheet of the reporting company and its subsidiaries except for any adjustments necessary to deduct valuation reserves from the applicable assets or to eliminate treasury stock from the total assets.

(1) *Assets Used or Employed by Domestic Branches:* In general, the total assets of domestic branches should be allocated to the branches or departments of the business in which such assets are used or employed. Assets specifically used in a particular department of the business should be allocated to that department. Assets of a general nature used in or applicable to more than one branch of the business may be apportioned among the several branches or departments on some equitable basis. A brief statement of the basis of apportionment should be submitted.

(a) Assets used or employed in the production branch or department of the business should include all assets used or employed to produce oil, and deliver it to the pipe lines. These assets should include producing oil and gas lands and leases—producing and non-producing; oil field headquarters, camps, warehouses; tankage on leases and oil in tankage; equipment, materials and supplies used in connection with production, etc.

(b) Assets used or employed in the transportation branch or department of the business should include all assets used in the transportation of oil and gas (1) from the wells to the refineries or storage, and (2) from refineries to marketing distributing points. In general, these assets should include all properties, plant and equipment and supplies of the pipe line, tank car and marine branches or departments, and should include lands, leases, and easements of pipe-line rights-of-way; pipe-

lines; tank cars, including equipment and supplies used in connection with tank cars; tank ships, barges, lighters, tugs, launches, and motor boats; etc.

(c) Assets used or employed in the refining and manufacturing branch of the business should include all assets applicable to this phase of the business. In general, these assets should include all properties, plant and equipment and supplies of refineries and cracking plants.

(d) Assets used or employed in the marketing branch or department of the business should include all assets applicable to the wholesale or retail distribution of the products of the reporting company and its subsidiaries, and should include all properties, plant and equipment and supplies of bulk stations and terminals and distributing and service stations.

(2) *Assets Used or Employed by Foreign Branches Engaged in the Petroleum Industry*: The assets used or employed by foreign branches engaged in the petroleum industry may be shown in total *without segregation as to departments*, i. e., production, transportation, refining and manufacturing, and marketing.

(3) *Investments in Affiliates Engaged in the Petroleum Industry-Unconsolidated*: The assets applicable to affiliates engaged in the petroleum industry-unconsolidated, should include all investments in and advances to affiliates engaged in the petroleum industry whose accounts are not consolidated in the consolidated statement of the reporting company and its subsidiaries. Investments in and advances to affiliates engaged in industries other than the petroleum industry should be included with general investments.

(4) *General Investments*: General investments should include all assets held for general investment and not connected principally with the petroleum industry. Investments in and advances to affiliates engaged principally in industries other than the petroleum industry should be included in this category. Securities and properties held for general investment should also be included.

(5) *Miscellaneous*: All assets not included in any of the prior categories should be placed in this classification.

INCOME

In general, the consolidated income of the parent company and its subsidiaries should be allocated to the various branches or departments of the business in which such income was earned.

This question requires that the income be reported in at least two categories as follows:

1. Gross revenue.

2. Net income before interest and dividends.

Additional classifications of income may be reported, if desired.

(1) *Gross Revenue*: Gross revenue in general represents the net sales (Gross sales less discounts, returns and allowances) of crude oil, gas, natural gasoline, refined products and containers; amounts received or accrued for transportation facilities; oil and gas royalties received or accrued; dividends and interest received on general investments; etc.

The ratio that gross revenue bears to the total assets used and employed in each branch or department of the business should be reported.

(2) *Net Income Before Interest and Dividends*: Net income before interest and dividends represents net income before deduction for any interest charges. It represents gross revenue minus all operating charges and expenses including depreciation, depletion and taxes.

The ratio that net income available for interest and dividends bears to the total assets used and employed in each branch or department of the business should be reported.

Analysis of Consolidated Assets and Consolidated Income (Classified by Branches or Departments)

(Name of Parent Company)

(Year)

	Total	(1) Domestic Petroleum Branches ¹				(2) Foreign Petroleum Branches ¹		(3) Investments in Unconsoli- dated Petro- leum Affiliates		(4) General Investments		(5) Miscellaneous	
		(a) Production		(b) Transpor- tation		(c) Refining and Manu- facturing		(d) Marketing					
		Amount	% of Total	Amount	% of Total	Amount	% of Total	Amount	% of Total	Amount	% of Total	Amount	% of Total
<i>Assets Used or Employed:</i>													
1. Properties, Plant and Equipment.....	100												
Less: Reserves for Depreciation, Depletion and Amortization.....													
Net.....	100												
2. Current Assets.....	100												
3. Non-current Security Investments.....	100												
4. Investments and Advances in Affiliated Companies — Unconsolidated.....	100												
5. Intangible Assets.....	100												
6. Deferred Charges.....	100												
7. Other Assets.....	100												
8. Totals.....	100												
Income.....													
1. Gross Revenue.....	100												
Ratio to Total Assets.....													
2. Net Income Before Interest and Dividends.....	100												
Ratio to Total Assets.....													

¹ In referring to domestic and foreign petroleum "branches" the term "branches" means "companies." A domestic company is one that is incorporated in the United States even though some of its operations are foreign operations. A foreign company is one that is not incorporated in the United States even though some of its operations are domestic operations.

² Includes parent company and all domestic subsidiaries engaged in the petroleum industry.

³ Includes all foreign subsidiaries engaged in the petroleum industry.

"EXHIBITS Nos. 1138 and 1139" are printed separately as Hearings, Part 14-A

EXHIBIT No. 1140

[Submitted by Dr. Joseph E. Pogue]

A STATEMENT PREPARED FOR THE TEMPORARY NATIONAL ECONOMIC COMMITTEE
(By Joseph E. Pogue, vice president, Chase National Bank, New York, New York)

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4. Actual and relative average retail price of gasoline in 50 representative cities by years, 1923-1937, together with comparative data.

EXHIBIT 1

Accompanying this statement is an exhibit illustrating the flow control of a typical oil well under conditions of proration in contrast with the gusher period. The exhibit consists of a leather case containing a cross-section of a piece of six-inch casing and segments of a $\frac{3}{8}$ " and a $\frac{1}{4}$ " chokes. The casing shows the size of the orifice through which wells were commonly flowed during the period antedating the practice of proration. A well so produced was a gusher and wasted the reservoir pressure, with resulting loss of oil. The chokes are steel billets perforated by a very small passage and under proration a device of this kind is introduced into the flow line of an oil well to enable the oil to be recovered under conditions of back-pressure. By use of chokes the flow is restricted with the result that the natural energy in the underground reservoir is efficiently utilized and waste minimized. By varying the calibre of the choke, the back-pressure and rate of production may be regulated, in the light of engineering principles, to a point representing optimum conditions of flow. At this stage maximum conservation of oil is accomplished.

ECONOMICS OF CONSERVATION AND PRORATION IN THE PETROLEUM INDUSTRY

By Joseph E. Pogue

CONCLUSION

Sec. 1. *Resume:*

1. The oil business is a highly technologic mass-production industry, utilizing large amounts of capital and assuming a comprehensive, integrated pattern.
2. The industry is subject to activation at the source by the rule of capture, which widens the range of production costs, impairs the functional aspect of price, creates instability, and at the same time inhibits maximum recovery.
3. Conservation resolves itself into measures for maximizing the effective use of reservoir energy in the production of oil, despite the contrary influence of the rule of capture.

† The exhibit is on file with the committee.

4. Reservoir energy can be most efficiently utilized by regulating the flow of oil pools to optimum rates, or less, in conformance with engineering principles, even though the pressures of supply may be contrary to this objective.
5. To enable such regulation of rates of flow, there is required a larger developed resource than would be needed to support open-flow production.
6. The wide cost-range characteristic of flush production under natural conditions prevents the attainment of surplus producing capacity, except at the expense of waste and economic disruption.
7. Proration or some similar restraining influence, becomes necessary to support the development of the potential capacity without which conservation is unattainable, and to protect the economy from disastrous repercussions in the transition.
8. Proration was initiated at the inception of an era of great technical advance in oil-field discovery, as a method for correcting overproduction, but as time went on its latent conservation functions became realizable and of growing application.
9. Proration now is a dual mechanism, still motivated by its economic component but directable with increasing emphasis upon its conservation function.
10. As now administered, proration involves waste prevention by means of restricted flow and ratable takings in the oil fields; and the attainment of a balance between supply and demand through a system of market-demand quotas.
11. The machinery of proration has developed in more effective degree than its application, so that the problems of proration arise from a lag in technique of application rather than lack of authority; although on the whole the system is working with improving effectiveness.
12. The eventual economic consequences of proration will be favorable if its evolution follows the present trend toward engineering objectives; but unfavorable if the immediate urge for stabilization through further implementation leads to the development of a rigid system of economic controls under which the vigor and flexibility of the industry will be impaired.
13. For a favorable outcome, proration requires a progressive shift in emphasis from endeavors to regulate the economic actions of groups and individuals to efforts to perfect engineering instruments and procedures capable of effectuating optimum recoveries with attendant stabilization.
14. For the present transition period, the existing machinery is adequate, but needs a correction of disruptive drilling incentives, an atmosphere of price flexibility to equate capital flow, and improvements in the administration of the quota system to bring it gradually into conformance with engineering optima.
15. If favorable consideration is accorded these matters proration will bring about a new equilibrium on a plane of natural balance between demand and optimum rate of supply, full conservation of the resource, greatly lessened dependence upon a market-demand quota system, and a furtherance of the cost-volume relationships essential for a mass-production industry.

INTRODUCTION

Sec. 2. *Preliminary remarks:*

The purpose of this statement is to present the results of my studies on the economics of conservation and proration in the petroleum industry, which have been conducted continuously since the inception of proration as an institution and now may be rounded out into a definitive statement. The presentation is undertaken for the Temporary National Economic Committee at the invitation of the Assistant Attorney General of the United States and I am grateful to Mr. Arnold for the opportunity to contribute, in some degree, to the understanding of one of the most complicated and least known sectors of our economy. I am a petroleum economist and engineer and was engaged in consulting practice from 1921 to 1936. I am now a Vice President of The Chase National Bank, in charge of its Department of Petroleum Economics, organized about two years ago. The formation of such a technical department represents, I believe, a new and constructive departure in American banking. My work has permitted me to observe continuously the evolution of proration and on three occasions

has brought me within its orbit: in 1930-1931, when a member of the Voluntary Committee on Petroleum Economics of the Federal Oil Conservation Board, which initiated the advisory quotas; in 1933, when serving as Deputy Economist advisory to the National Recovery Administration during the formulation of the Petroleum Code; and in 1938 when appointed a member of the Advisory Committee on Economics to the Interstate Oil Compact Commission. While an officer of a financial institution, I submit this report in my personal capacity as a technician.

Sec. 3. *Selected references:*

As this memorandum must be limited in length, a fuller but perhaps less mature exposition of many of the subjects may be found in certain of my published papers, as follows:

Selected Bibliography

1. Pogue, The Role of Drilling in the Functioning of Proration, Petrol. Devel. & Tech. 1936, Amer. Inst. Min. & Met. Eng., 1936, pp. 195-201.
2. Pogue, The Economic Structure of the American Petroleum Industry, World Power Conference, Washington, 1936. Republished in Bull. Amer. Assoc. Petr. Geologists, Feb. 1937, Vol. 21, pp. 149-196.
3. Pogue, An Equilibrium Theory of Proration, Petrol. Devel. & Tech. 1938, Amer. Inst. Min. & Met. Eng., 1938, pp. 274-281.
4. Pogue, Economic Aspects of Drilling, Bull. Amer. Assoc. Petr. Geologists, June, 1938, Vol. 22, pp. 633-644.
5. Sachs and Pogue, Internal Problems of Proration in the Conservation of Oil, Paper, Interstate Oil Compact Commission, Colorado Springs, July 29, 1938.
6. Pogue, Gasoline and the Consumer, Paper, National Petroleum Association, Atlantic City, Sept., 15, 1938.

THE ECONOMIC STRUCTURE OF THE OIL BUSINESS

Sec. 4. *Oil a mass-production industry:*

As a background for the analysis of the conservation-proration aspects of the oil business, it is necessary to have in mind the outstanding economic characteristics of this activity.

In the first place, oil is a big business. It utilizes 13 or 14 billions of dollars of capital, gives employment to over a million workers, constitutes a large customer for a wide range of other industries and serves practically the entire population with essential commodities. The health of the oil industry is consequently of prime importance to the entire economy. The nature of the petroleum industry requires it be a mass-production enterprise, turning out large volumes at minimum costs.

The dictates of mass-production have determined the economic structure of the industry, and certain characteristics of the resource have directed the manner in which this structure has been patterned. For example, oil is a liquid, occurring in widely scattered localities and requiring both random and scientific efforts for discovery; it is subject to specialized forms of transportation—the pipe line and tanker—invented for the purpose; and it is a mutual solution of chemical compounds convertible into multiple products and by-products; and these derivatives are required in standardized forms and in small units of sale at innumerable points throughout the country. The industry, in consequence, assumes an hour-glass configuration, with the raw material drawn from innumerable sources, concentrated into channels of flow through the transportation and refining systems, and again deploying into myriad lines of movement to countless points of final consumption. Vast amounts of capital are essential to the operation of this system, functional coordination of the several parts is achieved through integration of activities and the technologic factor is pervasive and of paramount importance.

Every innovation or development in the oil business must conform to the requirements of mass-production in order to survive. Conservation and proration are subject to this test.

Sec. 5. *Size and configuration of corporate units:*

Just as the industry as a whole is characterized by size and the integrated form, so the corporate structure is marked by the same pattern. In 1937 the combined

gross production of the twenty largest companies amounted to 56.2 per cent of the Nation's output, the individual companies ranging from 0.9 per cent to 6.3 per cent. The remaining 43.8 per cent was produced by thousands of smaller enterprises, ranging from a small fraction of a per cent to 0.9 per cent. For the same year, the twenty largest refiners processed 83.7 per cent of the Nation's total crude oil run to stills, ranging individually from 0.6 per cent to 12.3 per cent, while the remainder was processed by several hundred smaller units. The twenty most highly integrated refiners produced 72.5 per cent of their refinery requirements, purchasing the remainder from others.

These figures are sufficient to reveal that while both size and integration are conspicuous in the corporate framework, neither element is dominant; there is room for ample competition both between the larger and smaller units as groups, and amongst the larger units as individuals. About three-quarters of the business of the petroleum industry is conducted by companies engaged in all branches of the business, while the rest is transacted by units operating in only one or two divisions. Integration, however, is never complete even within the boundaries of the so-called integrated companies, and the structural patterns of the largest organizations include economic frontiers over which the flow of oil must pass.

It seems to me that both size and integration are functions of mass-production and thus promote efficiency and economy in serving the consumer. I doubt, too, if optimum size has been passed by any unit in the industry. It will be observed later on that both size and integration are functional in respect to the objectives and mechanics of conservation and proration. On the score of size, a natural law may be cited which has an important bearing upon the conservation of oil. Reference is had to the law of deferment—the principle that the present value of future income decreases in proportion to the degree of postponement. Accordingly no one wants to defer the conversion of an oil reserve into cash any longer than necessary. An integrated company, however, motivated by the desire to insure its future with ample reserves, is influenced by the cost of deferment to a smaller degree than an independent producer; likewise a large operator can usually afford to wait longer than a smaller operator. Hence both integration and size tend to retard the rate of exploitation, which, as we shall see later, is the essence of the conservation problem.

Sec. 6. Technology dominant factor in oil industry:

Because of the occurrence and nature of petroleum, and the large amounts of capital required for the manifold operations from field to consumer, the oil business is dependent upon technical knowledge and research to an exceptional degree. The importance of the technologic factor is a dominant element in every phase of the business. Without a dynamic technology, the industry could not have grown to its present size and importance, nor supported the ramifying range of activities dependent upon it. The industry accordingly, must be managed in a way to encourage the further development of this powerful force.

I doubt if the technological accomplishments in this field are adequately appreciated by the public. They have been revolutionary, but the subject can only be touched upon here. A well was lately drilled to a depth of 15,000 feet, and this circumstance has been characterized as the most important event of the year in the oil business. Recently the technique of measuring the minute traces of hydro-carbon gases that leak from our oil fields and form "gas halos" has been commercially perfected; and now chemical analysis has taken its place alongside the gravitational, seismic, electric, and magnetic principles employed in prospecting for oil. About twenty years ago the oil industry sensed that an oil scarcity lay ahead; and a shortage was indeed imminent but for one factor—technology. The organized forces of applied science upset the expectation and created instead the problem of coping with a surplus. We now apparently stand on the verge of the second great revolution in processing technique, a shift from thermal to catalytic cracking—a retooling job that will cost the industry around two hundred million dollars. But the change has to be made in the interest of lowered costs, improved quality, and increased flexibility of yield whereby more of the wanted products can be made from the residual fractions.

Time does not permit an adequate description of the technologic factor, so this subject has been treated impressionistically in order to direct attention to its important role in the oil business. Here, as elsewhere, the driving power of technology must be nurtured and encouraged against all hazards, for this force is primarily responsible for the rapid growth in the American standard of living.

DOCTRINE OF CAPTURE

Sec. 7. Rule of capture: an unbalanced accelerator:

The key to an understanding of the oil industry is a clear perception of a factor unique to this business—the rule of capture. The single oil pool is the natural unit of property, but owing to the usual circumstance of subdivided ownership, the lease is the common-law unit. Because of the fancied analogy of oil to wild game, our courts have recognized that whatever the landowner could withdraw from the common reservoir, he could take and keep, irrespective of its effect upon his neighbors; and that the only defense the neighbors had was to do likewise. It is a remarkable fact that what would appear offhand to be an innocuous detail, is a matter of profound importance to the operators of a major industry. This rule is imbedded in the customs and traditions of the oil producer, is reflected in the covenants between lessors and lessees, and traces through the ramification of subdivided royalty interests that give hundreds of thousands of individuals in all walks of life a legal interest in the manner in which oil is produced. Since under the rule of capture each operator is forced to protect his property from drainage by others, else he suffer not only the loss of oil captured from him but also forfeit the lease itself for neglecting the interests of the lessor, a powerful incentive is created making for rapid development. This force compounds itself in the aggregate and renders oil production like an automobile equipped with an accelerator but no brakes.

This doctrine held full sway from the inception of the industry to the beginnings of proration. During this period it had its merits. Acting as an accelerator of production, by adding to the normal competitive forces an extra impulse, it made possible the vigorous growth essential to the advancement of the economy in general and the automotive industry in particular. But it was a rule of convenience, not an engineering principle. Once the demand for oil began to slacken in its rate of growth and new technical methods advanced oil-field discovery, the rule of capture became untenable and its death struggle is coextensive with the rise of the conservation-proration concept and practice.

The setting for the rule of capture is the divided oil pool. Most oil pools in the United States are owned by competing operators. This comes about not primarily because the land was so held before discovery—although that is often the case—but because of an important principle, the division of risk. Oil discovery is so speculative and costly that the custom is for operators to share the risks and divide the rewards and thus avail themselves of the law of averages. In this way the small operator can compete with the large company in the discovery of oil. I believe that the discovery of oil cannot be standardized and conducted along lines of a prearranged plan; the principle of multiple effort must be invoked. A substantial part of our oil is found by daring individuals following unorthodox leads, and such enterprise should not be discouraged. We cannot, therefore, safely plan to have our oil fields pre-owned as units. Subdivided ownership, however, is the medium in which the rule of capture thrives.

Sec. 8. Rule of capture losing its vigor:

Notwithstanding its effectiveness under certain conditions in the past, the rule of capture has become disserviceable for the reason that under modern circumstances its function as an accelerator is not needed and its harmful effects in unbalancing the oil economy and creating waste are no longer compensated for by social gains. I used to think that the rule of capture should be done away with summarily by legal action, but I now recognize that the direct approach is probably too involved to be practicable. Where the field is owned singly or managed cooperatively, the result is unit operation, which removes the basis of the capture principle. This procedure is gradually gaining headway in the business and the formation of pool cooperatives should certainly be encouraged in every feasible manner, but the progression toward full unitization, while persistent, is slow, because of the principle of deferment. The most expeditious way, therefore, to handle the rule of capture is to tame it by setting up operating rules under the police power of the States, whereby pools are permitted to be owned as now by a severalty of individuals but these individuals are not permitted to drain their properties at unequal rates because in so doing they commit waste. This, among other things, is what proration is aiming to do. It is a flank attack on the rule of capture.

CONSERVATION

Sec. 9. *Nature of Problem:*

Oil is an irreplaceable natural resource, apparently of limited size, and its efficient and rational utilization is obviously necessary. The avoidable waste of oil cannot be condoned and the conservation of oil is a direct responsibility of the petroleum industry. What is meant by conservation? Let me quote a few definitions:

"Conservation assumes wise, economic, judicious utilization."

"By conservation * * * we mean not hoarding, but orderly and efficient use in the interests of national welfare, both in war and peace, without unnecessary waste either of the physical resources themselves or in the human elements involved in their extraction."

"Conservation means that the resource should be drawn upon without waste and in orderly response to the economic needs of the country."

There can be little quarrel with any of these definitions, but what is called for if the economic requirements of the country cannot be met without waste? Where lies the national welfare, the public interest, under such circumstances? The questions pose a dilemma, for such was the situation in oil up to the twenties: the required rates of production could not have been realized without the sacrifice of part of the resources to that end. Whatever the answer *should* have been, it is clear that when both conditions could not simultaneously be fulfilled, the economic needs of the country took precedence and waste became a social cost. Fortunately the Nation is not now faced with such alternatives: There is ample oil in sight to support our economic needs without waste and therefore the conservation ideal is within reach. Far from being unmindful of conservation, the petroleum industry has made this theme the central motif in the reconstruction of its entire production practice so as to bring about more harmony with this principle.

The wastes of oil fall into two groups: those visible aboveground and those that occur unseen in the reservoir. The first class, prominent in the period of rapidly expanding demand, has been eradicated in recent years and, no longer presenting a problem, may be dismissed from further consideration. The second class, representing oil that fails to be recovered, is negative and unspectacular, but none the less important because indirect. This category is the proper field for attention and constitutes the problem of conservation. Conservation formerly was concerned with the oil lost on the surface and the gas dissipated in the air, and there is still a tendency to think in those terms; but the practical elimination of above-ground waste leaves the problem of conservation centered in the restriction of losses in the underground reservoir itself.

Aboveground losses of gas are still observable in certain areas, but are related to inadequate control of reservoir energy rather than to inefficient handling of the gas itself. Great volumes of gas have been blown into the air in the race to produce oil rapidly and this practice, while greatly lessened, has not been wholly eradicated. The waste of gas is spectacular and examples have been repeatedly publicized. Gas losses in our oil fields fall into two categories: the gas which *must* be produced with the oil and, lacking a market, is blown into the air or burned; and the gas which need not be produced with the oil but is so produced in order to increase the rate of oil production. At present the first class to a large extent is an unavoidable practice (else the oil must remain shut-in); the second class is a malpractice stemming from the rule of capture. The first class is in process of elimination through pressure maintenance, repressuring, and further developments in the natural gas industry;² the second class is subject to control through proper management of the underground reservoir and considerable progress has already been made in the retention of the surplus gas in the reservoir until its usefulness there is fulfilled.

Sec. 10. *Engineering background of conservation:*

It now becomes necessary to review the complex field of engineering developments in the production of oil and, by setting aside the less essential features, to emerge with a simple, clear-cut understanding of how an oil field should be produced. A volume could be written on the subject, but the essence can perhaps be condensed into a single paragraph.

²For the background of this problem, see Pogue, *Opportunities and Responsibilities of the Natural Gas Industry*, Paper, American Gas Association, October, 1938.

Oil occurs in underground traps in association with water and gas. The water underlies the oil and exerts a pressure on it. The gas occurs dissolved in the oil and also, in some fields, as a gas cap overlying the oil. Both the pressure of the water and the expansion of the gas provide energy for moving the oil through the sand to the well and thence to the surface. The gas also has additional qualities: Its presence in solution renders the oil far more liquid than we know oil to be in its dead state aboveground and in addition lessens the tendency of the oil itself to stick to the sand grains. It follows, therefore, that an oil pool should be so managed that the maximum utilization shall be made of the reservoir energy and of the presence of the gas itself, which usually means that the production should be restricted to a rate that will restrain the gas from coming out of solution in the reservoir and permit the oil to be replaced by the encroaching water. In short, to obtain optimum recovery of oil from the reservoir, the rate of production must be regulated in conformance with engineering principles rather than left freely responsive to the dictates of demand or the competitive pressures of supply. The discussion could be lengthened to include the differences in behavior and operation of pools governed by hydraulic, volumetric, and capillary controls; while the management of the gas cap and the employment of methods of pressure maintenance, repressuring, and secondary recovery are also important. But these are specific problems in engineering and do not alter the general principles.

The optimum rate concept, it will be observed, concerns the individual oil pool; but a summation of the specific rates provides the optimum rate for each oil-producing State and, in turn, for the Nation as a whole. In order to effectuate the optimum rate in a given pool, two measures are necessary: limit the rate of production of the pool as a whole to that rate, as determined by engineering study, beyond which underground waste appears; and, if the field is competitively owned, impose upon the several operators the requirement that the oil be withdrawn ratably from each property, with due regard to the preservation of equilibrium within the reservoir as determined by bottom-hole pressure readings. In this way optimum recovery is assured, because the urge to produce is harnessed to engineering principles and each lease in the pool is enabled to subordinate the capture impulse to a coordinated action in harmony with the limitations placed upon the entire pool. The procedure, also, conforms to the principles of fair play and justice, for the correlative rights of each property owner are protected and equity is maintained.

It may be observed that the optimum rate objective is the goal toward which proration, in its evolution, has been groping and the degree of advancement in this direction appears to me to be greater than is generally realized. I see nothing in the way of a progressive attainment of this practical ideal of oil conservation unless it be failure on the part of social and industrial management to envisage the nature of the problem.

Sec. 11. *Elements of conservation:*

The approach to oil conservation involves two lines of effort: the furtherance of technical knowledge through engineering research to provide the technique for augmenting the utility of the resource; and the development of an adequate concept of action in order that an effective procedure may be established. Technical understanding is an automatic resultant of a vigorous, mass-production industry, and the achievements in this field have not only been noteworthy but are in fact ahead of their full application in the economic sense. A function of the capital employed and activated by the integrated structure of the industry, the factor of technology presents a dynamic aspect that assures its availability in ample measure. The problem of conservation, accordingly, boils itself down to the construction of a single design: a production practice that will result in the optimum recovery of oil from the reservoir at a rate conforming to the requirements of society. The term *optimum*, frequently used in this analysis, carries the implication of a price-cost relationship that will maximize the usefulness of the resource to the consuming public.

Thus the thesis of oil conservation, in a practical sense, centers around the rate at which oil is produced. *Control the rate properly, and conservation of oil becomes an accomplished fact.* Since frequently as much as two-thirds of the oil is left behind in the sand under open-flow operations, wells *must* be throttled below capacity if waste is to be avoided. But before restricted operations are feasible, an extra capacity must be developed and the conditions leading to the building up of this margin are indistinguishable from overproduction. There-

fore, it appears only natural that conservation was ushered in by a period of overproduction.

PROBLEM OF ECONOMIC STABILITY

Sec. 12. *Wide cost range disturbing influence:*

Crude petroleum naturally has a substantial range of costs because of the varying nature of its occurrence. Some oil fields are shallow, while others are deep-seated; some have thick sands under high pressures and yield their oil easily, others are in tight sands and give up their oil reluctantly. These conditions are not subject to control. But there is an additional factor—an unregulated rate of production—that distorts costs, creating extraordinarily low costs in the flush period and correspondingly high costs thereafter. Accordingly, the fate element, under conditions of flush production, imposes a cost latitude that exceeds that of all other commodities and disturbs the function of price as an equilibrator of supply and demand. The costs of producing oil in a given field range all the way from a few cents a barrel in its flush stage to upwards of a dollar in its settled stage. Therefore oil from flush fields, divorced from the dictates of full costs and subject only to the influence of temporary out-of-pocket charges, can be sold for less than the bulk of production; and if in sufficient volume this component disrupts the stability of the industry.

Flush production is wasteful of reservoir energy while restricted flow is the essence of conservation. Wasteful practices in producing new oil fields result in lower current costs although they raise substantially the ultimate cost of the oil and reduce the total recovery. The economic pressure to convert an oil reserve into cash, especially in the presence of divided ownership under the influence of the rule to capture, encourages a policy of haste and waste from which there is no escape except through the imposition of artificial restraints under proration or voluntary control under unit operation. Cost competition is a desirable matter where such is a function of efficiency, but if low costs are attained at the expense of waste and an aftermath of higher costs, then the competition becomes destructive and antisocial.

It has been emphasized that waste can be avoided only by flowing an oil pool at a restricted rate. But when we reduce the rate of flow, we narrow the cost range; that is, we smooth out the cost curve. And when the cost curve is smoothed, the price curve is flattened. This principle observable in the single pool holds for the country at large, if fields in the aggregate are restricted. An important relationship accordingly comes to light: Conservation practices *per se* have a leveling effect upon costs and hence exert a stabilizing influence upon price. This inescapable result is a by-product of an act necessary on the grounds of conservation alone. As I see the matter, it is a very happy circumstance that those measures best calculated to prevent waste at the same time contribute to economic stability.

Even if costs and prices are smoothed by the effectuation of optima in production rates, however, there is still left a residual element of instability arising from the cost disparity between pools efficiently produced and the tail-ends of old fields. This statement poses the familiar stripper well problem. According to a cost study for the period 1931-1934, conducted by the Department of Interior,^a it was shown that 10.41 per cent of the oil reported had a cost range of 0 to 39 cents a barrel; 49.95 per cent, a cost range of 40 to 79 cents a barrel; 25.04 per cent, a cost range of 80 to 119 cents a barrel; and 14.60 per cent, a cost range of \$1.20 to \$4.40 and above a barrel. The extent of this cost range could be lessened under an optimum-rate limitation for production, but there is no escaping the fact that there will always be stripper wells. They are high-cost, marginal sources of supply which must eventually be abandoned upon economic exhaustion. Wells of this type have been accorded public attention because of the plausible plea that their abandonment means permanent loss of an important oil reserve, although the oil in most cases will still be available if operations are resumed. Ordinarily wells can be shut in for long periods without loss of reserves while proper abandonment practice leaves the oil available for secondary methods of recovery. The importance of the stripper-well argument will decline, however, under optimum-rate control of flush fields, for the properly-produced oil pool will leave a less persistent legacy of stripper wells, thus repudiating the unrecovered reserve in the stripper stage of less relative importance than it is today. Price collapses have usually been the causes for the

^a Petroleum Administrative Board, Report on the Cost of Producing Crude Petroleum, Washington, Dec. 1935, Table 13.

abandonment of stripper areas, rather than persistent declines in physical production to very low levels; whereas the smoothing of prices induced by conservation will make virtual physical exhaustion, as it should be, the major determinant for relinquishment.

PRORATION

Sec. 13. *Nature and development of proration:*

Proration has been described in a single phrase: "No more gushers." The process may be graphically illustrated by displaying a $\frac{1}{8}$ " choke and explaining that this small perforated steel billet, inserted into the flow line of an oil well beans down its rate of flow so that more oil is ultimately recovered, the flowing life is prolonged, and the cost curve is smoothed.

The conditions that gave rise to proration go back to the early post-war period when supply began to outdistance demand. Previously there had been periods of overproduction, but they were episodic and short-lived under the forward surge of consumption. But the conjecture of revolutionary changes in the art of oil-finding with maturing demand brought on a setting in which overproduction took on a chronic aspect. For a while this new situation was met by adding the surplus to storage, but when this expedient ran its course, resort was had to the curtailment of key areas in the hope thereby of reestablishing a balance. The early steps were taken locally and tentatively, with no thought that a new operating form was under construction; but as additional fields came in the practice spread, the conservation laws of the States were invoked, and the procedure gradually became institutionalized and systematic organs of administration were developed. Time does not permit a detailed historical treatment in this place nor is that necessary. Suffice it to say that a new industrial design has evolved and become implemented, which in many respects is one of the most interesting experiments in State coordinated, industrial self-regulation in our economy today.

As it now stands, proration is a planned production measure involving waste preventing ratable takings, and a balancing of supply and demand, behind which stand the principles of conservation, equity, and stabilization. The procedure is administered by State regulatory bodies through use of the police power of the States under the authority of State conservation laws; and the Federal Government has accorded its cooperation by providing advisory quotas, circumscribing imports, checking movements of hot oil in interstate commerce, and ratifying an Interstate Oil Compact. In the course of the past twelve years this regulatory system has become an institution with a framework of laws, court decisions, administrative bodies, trade practices, and traditions. The oil industry has come to be dependent upon proration and cannot be operated efficiently without it.

Sec. 14. *Proration shifting the equilibrium plane:*

Proration was launched as a measure for averting the economic consequences of overproduction. The primary motive for its application was undoubtedly economic, with the conservation aspect invoked as a basis for its establishment. This historical sequence has strongly colored current thinking on the subject and proration has come to be widely regarded as merely a production control. But whatever the nature of its impetus, proration has turned out to be a cardinal move toward conservation. The industry wrought better than it knew, better indeed perhaps than it realizes now. Frank testimony wisely drawn might not clearly reveal this fact, but the logic of analysis does. Let me make this point plain.

The only way to maximize oil-field recovery, is to restrict the flow. Likewise the only way to suppress overproduction, if it appears, is to do the same thing. Yet the only condition under which recovery can be maximized is one where there is sufficient potential supply to admit of its curtailment to an efficient rate. Therefore, once there is surplus producing capacity in terms of wide-open operations, we cannot restrict the flow without preventing underground waste; and contrawise underground waste cannot be prevented without restricting the flow. Proration, accordingly, is by its nature a conservation measure as well as a production control. The only question in this regard is the relative emphasis to be placed upon each factor and whether indeed the two elements can be dissociated in practice.

Proration started as a production control linked with waste prevention, is now a conjoint conservation measure and production control, and its trend is toward a preponderance of the conservation function. What is taking place is

that the petroleum industry is in the course of making a transition from a condition of balance between demand and open-flow supply to a new plane of equilibrium between demand and optimum-rate supply. The passage is made feasible by the procedure or plan called proration.

Sec. 15. Quota system:

The conservation of oil involves two objectives: the restriction of flow to prevent physical waste, and the enforcement of ratable takings, or proportionate withdrawals, amongst the operators in the single pool, to preserve underground equilibrium and conform to the dictates of equity. Throughout the process the requirements of equity must be harmonized with the physical objectives, and the fairness of the adjustment is under constant review by the courts. Proration as practiced embraces identical principles and dictates, but at the same time attempts to make the system workable by measuring demand and fitting the varying components of supply to this factor. The machinery for accomplishing these ends involves the use of a quota system in which it is sought to bring into accord the requirements of waste prevention and market demand; but the efforts to reconcile the prescriptions of conservation with the exigencies of the market create problems of great complexity, involved in aspect and difficult to resolve.

If each pool were limited in output to its most efficient rate of flow and ratable takings within each pool were enforced, then the primary objectives of conservation would be realized; but supply and demand would not balance in all their ramifications because prior investments are not in conformance with this pattern. Moreover, the components of supply and demand are in course of continuous change and a balance once attained would itself tend to alter, thus indicating the need for a flexible procedure capable of sustaining a moving equilibrium characteristic of a dynamic economy. Price, of course, is normally the most effective regulator of supply and demand; but for special reasons, as we have seen, the supply factor in oil must be regulated. If a set of inflexible rules, however, were suddenly imposed and enforced, a condition of disequilibrium would result disruptive of economic stability and destructive of progress toward conservation. As a pragmatic matter, accordingly the progression toward the desired objectives, having its inception in a period of overproduction and unbalance, must proceed gradually and allow time for the necessary adjustments, not leaving the entire process of equilibration to price alone but supplementing this agency with the support of a program of restriction that bears some relationship to the geographic disposition of the reserve and the existing pattern of trade channels. Once, however, the critical adjustment has been accomplished—and this adjustment is still going on—the dependence upon quotas keyed to market demand can give way to engineering quotas more exclusively dictated by the supply factors.

On grounds other than interim expediency, there are practical arguments for the market-demand measurement. In a given pool, let us say, there is a market outlet for 30,000 barrels a day, whereas the pool, as determined by engineering study, can efficiently produce 60,000 barrels a day. The regulatory authority is charged with the responsibility of seeing to it that the pool does not exceed the 60,000-barrel optimum, but at the same time must require that any smaller production be withdrawn ratably. As an administrative matter, therefore, the State authority feels compelled to establish a market-demand quota for 30,000 barrels, subject to change from month to month if the demand alters as revealed at official hearings. And once the utility of a market-demand quota is conceded for the single pool, then the principle becomes established for the totality of pools and a Nation-wide market-demand quota system comes into existence. As a matter of fact, the allowable production of each State and in turn for the Nation as a whole is but a summation of the allowables of the component pools, arrived at after consideration of the local conditions surrounding each unit. The market-demand quota system is thus constructed from the bottom up, instead of being imposed from the top down, which is an important distinction; for the system is keyed to the source where it can be accorded flexible consideration in its manifold and shifting parts. The application of the advisory quotes, calculated by the U. S. Bureau of Mines, is that of a coordinating yardstick to permit the State regulatory bodies to visualize in advance the probable bearing of their respective actions upon the general situation.

Accordingly, despite the risks of maladjustments arising from the mishandling of the market-demand factor, the inevitability of market-demand proration must be accepted for the present. This aspect of proration may be eventually dispensed with, or at least greatly minimized in its incidence, but the time is not here when this can be done. The market-demand instrumentality must continue

to be utilized but, to be sure; with greater regard for the proprieties of a moving equilibrium.

Interestingly enough, practically all the objections to proration arise from the application of a market-demand quota system. These objections are brought forward on several counts; that the system interferes with the free play of supply and demand; that it is not wisely and fairly administered; that it does not create stability. This mechanism certainly offers opportunities for favoritism and abuse in its administration, but the same is true of all administered systems. It might even be said that a system of free economics favors the flush field and is "unfair" to the marginal operator. For my part, while recognizing the difficulties of administering a system based upon market demand, I find it difficult to see any practical way in which this phase of proration can be gotten along without until a new equilibrium is attained centering about a plane of demand balanced with optimum-rate production, and even then the equilibrium will not be static but in continuous course of change. That objective, of course, is being measurably approached, but until reached the specific problem is one of improvement and intelligent direction of the existing arrangement in the presence of a free market structure.

Sec. 16. Drilling practice unadjusted to delayed production:

In the development of the administrative aspects of proration, the creation of means for bringing about equilibrium between drilling rates and production rates has lagged behind the progress made in other directions and hence a maladjustment has appeared which calls for correction. In the pre-proration era, under the reign of the rule of capture, wells were drilled densely and as rapidly as possible, for in no other way could the production from a single property, as contrasted with the pool be maximized, although equal speed and well density on the part of all operators in the single pool cancelled out the individual advantage. With the establishment of proration, however, two new factors appeared: It was discovered that the conservation of reservoir energy was a partial substitute for drilling, since under back-pressure methods fewer wells are needed than under open-flow practice; and it became apparent that if the rate of production is to be restricted and therefore the pay-out period lengthened, then a concomitant spreading out of the investment period should likewise be provided for. Both of these considerations in the course of the past few years have entered the consciousness of operators, and have even received the cognizance of the regulatory bodies, as exemplified in well spacing rules in many pools and insistent discussions of the subject at Commission hearings. But by and large the drilling concept is less advanced than is desirable and the principle that the State fails to do equity if it compels deferment in oil withdrawals without at least making it possible for the operator to retard his investment commensurably is yet to be established, although the matter appears to be getting close to that stage.

As a result of this unadjusted element in the handling of proration unnecessary wells in great numbers have been drilled in the past few years and the allowable production per well has declined to the point where the whole subject is coming in for active attention.⁴

Expressed in other terms, production has been largely divorced from the effects of the rule of capture, but drilling has not been freed from this influence in equal degree. In the administration of proration, the well rather than the underlying oil reserve has usually been accepted as the ultimate unit for allocation of demand. This policy creates artificial incentives not only for drilling more wells than are necessary to extract the oil but also for drilling in advance of economic requirements, and hence capital is employed prematurely and in unnecessary amounts. In this way the rate of capital-flow into production has been distorted, and the disequilibrium created by this circumstance, in my judgment, was one of the causes of the decline in crude oil prices in October, 1938. The maintenance of equity amongst operators and balance in capital-flow can be effected through the recognition of the available oil as the unit of proration and the utilization of this factor as the basis for lease allowables.⁵ In this manner the pressure to drill unnecessary wells would be reduced promptly and the conservation of capital made an essential by-product of the conservation of oil. Once this is done, some of the most perplexing difficulties now plaguing the regulatory bodies and the oil operators will be resolved.

⁴ See Pogue, *Economic Aspects of Drilling*, Bull. Amer. Petr. Geol., Vol. 22, June 1938 pp. 633-644.

⁵ Much can even be accomplished on the part of the administrative bodies by the simple expedient of introducing an acreage factor into the allocation formula.

MACHINERY OF PRORATION

Sec. 17. *Conservation authority of the States:*

Proration is based upon the power inherent in the State Governments to regulate production practices in the interest of waste prevention. This power is expressed through conservation statutes and administered by regulatory bodies such as the Texas Railroad Commission, the Oklahoma Corporation Commission, and the like. The litigation through which the conservation laws have passed has established three principles, as follows: The State, in the interest of protecting its natural resources may legislate against waste on lands privately owned; the State, may by legislation regulate the correlative rights of the common owners of an oil pool so as to insure ratable withdrawals; and the State, on common-law principles, may abate as nuisances operations that endanger life or property. Ample power, therefore, resides in the States to effectuate modern and efficient conservation measures. The States more advanced in attention to the subject have developed creditable conservation laws and further progress is under way, both in the improvement in the basic laws in the more backward States, as well as in the interpretation of the existing laws by the courts.

In addition to the conservation statutes of the oil-producing State there are other types of machinery involved in the proration mechanism, such as the Interstate Oil Compact, the Connally Act, excise taxes on imports, and the advisory production quotas prepared monthly by the U. S. Bureau of Mines. It will be observed that these supplementary implements involve both mandatory and cooperative principles.⁶

Sec. 18. *Interstate Oil Compact:*

On February 16, 1935, six States—Texas, Oklahoma, Kansas, New Mexico, Colorado, and Illinois—entered into an oil conservation compact, or treaty, obligating each State to enact and enforce conservation laws and to cooperate through an Interstate Oil Compact Commission. This body was declared to "have the power to recommend the coordination of the police powers of the several States within their several jurisdictions to promote the maximum ultimate recovery from the petroleum reserves of said States, and to recommend measures for the maximum ultimate recovery of oil and gas." Among other things, each signatory State agreed to accomplish within reasonable limits the prevention of a number of undesirable practices including "*the inefficient, excessive or improper use of the reservoir energy in producing any well*". The principle leading to full and effective conservation, therefore, was specifically agreed upon in the Compact. Likewise measures for limiting production for the purpose of fixing prices, creating or perpetuating monopoly, or promoting regimentation were specifically excluded. The Compact was approved by Congress, renewed for a two-year period in 1937, and comes up for extension in 1939. The Compact lacks the adherence of several important oil-producing States, such as California, Louisiana, Michigan, Arkansas, and Pennsylvania, but the sessions of the Commission are usually attended by observers from these States as well as from the technical bureaus of the U. S. Department of Interior. It will be observed that the Compact lays its emphasis on conservation, whereas the Petroleum Code under the National Industrial Recovery Act centered upon economic objectives of stabilization.

The Interstate Compact Commission meets quarterly and serves as a forum for discussion. Attended by numerous oil men and widely publicized in oil circles, these sessions have served a useful purpose in laying the groundwork for coordination. The real work of the Compact lies ahead and centers, it seems to me, around promoting a concerted engineering attack upon the problem of conservation in order to perfect and standardize the methods for effectuating the full utilization of reservoir energy. In May of 1938 the Commission appointed an Advisory Committee on Economics, which has reported in favor of the engineering approach and presented an analysis of the internal problems of proration that await solution, concluding with the statement:

"Created by a treaty amongst the oil-producing States and validated by the Congress of the United States, the Interstate Oil Compact Commission constitutes an organization charged with the duties of furthering the conservation of oil. Under its purview falls the practice of proration, the scheme of operations whereby an orderly and efficient development of our oil fields is sought under the direction of the oil-producing States. When reviewed and evaluated against the chronic overproduction, price gyrations,

⁶A good description of the legal and administrative machinery may be found in Ely, *The Conservation of Oil*, The Harvard Law Review, Vol. LI, No. 7, 1938, pp. 1209-1244.

and economic crises that preceded the development of the coordinated functioning of proration under State regulation in the interest of conservation, the record since is nothing short of remarkable and constitutes a major contribution to economic equilibrium and progressive cooperation between industry and government. The very achievement in the recent past challenges us to meet the new and long-term problems of this industry with its ramified significance for national welfare. As the obvious agency for assisting in the more effective development of the proration technique, the Commission faces a high and important duty. There needs merely the establishment of proper organs of investigation and research to enable this agency to exercise a far-reaching influence upon the development of a new industrial pattern that may prove to be a model in State-coordinated, self-regulation of a great and complex industry."

The Interstate Oil Compact seems to me to represent an indispensable agency for the coordination of the conservation policies and actions of the various oil-producing States. It needs the inclusion of additional States and every effort should be made to gain their membership. The function of the Compact is specified in its charter, and an extension of scope to include purely economic objectives would impair its serviceability for the future, however attractive such action might appear for the moment.

Sec. 19. *Connally Act:*

The Connally Act supports the State conservation laws by prohibiting the movement in interstate commerce of oil produced in violation of State laws. This support is logical, sound, and helpful as adding a necessary element to the effectiveness of the intrastate conservation efforts. This principle was initiated under a section of the Petroleum Code, enacted into a separate law in 1935 and extended in 1937. This enactment expires in 1939, and, although indispensable only under emergency conditions, it is a desirable supplementary control and its renewal will be helpful to the situation.

During the earlier stages of the East Texas field, the volume of contraband oil, largely going into interstate commerce, was of disrupting proportions and this influence was not eradicated until Federal aid was accorded and effectuated. It is estimated that 104 million barrels of hot oil have been produced to date from the East Texas field, but only a small volume has made its appearance since 1935. The record, as drawn from recent scout reports, is as follows:

Estimated production of hot oil in East Texas Field

[In millions of barrels]			
1931-----	3.3	1936-----	2.8
1932-----	25.3	1937-----	1.5
1933-----	35.1	1938 (8 mos.)-----	0.3
1934-----	22.9		
1935-----	12.5	Total-----	103.7

Sec. 20. *Import restrictions:*

Imports of crude oil and its products into the United States, an important factor in the twenties, have been restricted since the middle of 1932 to a small and fairly steady rate proportional to the domestic production of crude oil. The means whereby this restriction has been effectuated are two: the Revenue Act of 1932, effective in June of that year, placing an excise tax of 21 cents a barrel on crude and heavy products, and 2.5 cents a gallon on gasoline, if imported for domestic consumption; and a voluntary agreement entered into in 1933 between the Secretary of the Interior and the principal importing companies to the effect that imports shall be restricted to the average for the last six months of 1932. The provisions of this voluntary agreement were later incorporated into the Petroleum Code under the National Industrial Recovery Act and, since the invalidation of the NIRA on May 27, 1935, the importing companies have continued to conform to the levels of the voluntary agreement made with the Secretary of the Interior in 1933.

The annual rate of total imports of crude and products from June 30, 1932 to September 30, 1938, has averaged from 4.3 to 5.6 per cent of the domestic production of crude oil, and if the quantity bonded for re-export be excluded, the range of the ratio of imports for domestic consumption to the domestic production of crude oil has been from 2.3 to 4.2 per cent. For the first eight

months of 1938, the proportions have been 4.3 per cent and 2.3 per cent, respectively, in each case the lowest ratio in the range.

Despite the objections to quota restrictions in international trade, it is obvious that if domestic wells are to be regulated, imports should be in some reasonable ratio to domestic production; and it seems to me that under proration the import factor has been held in consistent check, especially in view of the fact that the percentage of total imports of oil to total exports has declined from 72.1 per cent in 1932 to 26.5 per cent in 1938 (8 months). In fact, our balance of trade in oil has favored the commercial rather than the conservation concept, but this circumstance is not unreasonable under the premises. The import factor is subject to influence by the Federal Government and the President apparently has the authority to raise or lower the import levy on oil to the extent of 50 per cent without further Congressional action.

Sec. 21. Advisory production quotas:

The proration mechanism is provided with advisory estimates of demand subdivided into State allocations, prepared monthly by the U. S. Bureau of Mines. These quotas are viewed as evidence of demand by the administrative bodies in the States and serve a useful purpose as a check on the quotas determined in the States by a summation and adjustment of buyers' nominations. The State quotas, accordingly, do not match precisely the advisory figures, although there is a general tendency toward approximate conformance. The advisory quotas were initiated in 1930 by the Voluntary Committee on Economics to the Federal Oil Conservation Board and their preparation was subsequently taken on by the Bureau of Mines. These estimates are welcomed by the State administrative bodies and constitutes a comparison for the market demand level which the proration mechanism seeks to approximate with supply. These advisory quotas, I believe, serve a useful purpose and should be continued.

Sec. 22. Present proration machinery adequate:

In my judgment the existing mechanism of proration is adequate for the purpose, although the machinery itself can be bettered and applied more broadly. The State conservation laws should be extended and systematized. The standards of enforcement should be raised. The Compact needs a wider membership and the addition of a fact-finding and engineering function. The Connally Act should be extended and the advisory quotas continued. In general, however, I see no need for new legislation, except in States not now adequately equipped with modern conservation statutes; rather does the system require a clearer perception of the conservation objective and the development of new organs of thought and investigation—a fuller implementation of technique—and a generally keener realization of the functional aspect of price. The shortcomings of proration seem to be those of methodology and administration, rather than those of inadequacies of laws and means of administration (except, of course, in the States backward in the latter respects).

ECONOMIC CONSEQUENCES OF PRORATION

Sec. 23. Effect upon prices:

If we regard the period of proration as extending from 1926 to the present, with the practice more definitely institutionalized from 1933 to date, we find that the price trend of crude and products was downward from 1926 to 1932, upward from 1933 to 1937, and downward again in 1938. This course conforms rather closely with the movements of the business index and the general price level, as shown in Table 1. Upon examination of the data I can find no elements of behavior in the retail price of gasoline, for example, that look illogical in terms of the business index and the general price level, other than that the gasoline series show a less than normal upward response to these indexes in the recovery period of 1932 to 1937. This does not mean to say, however, that gasoline prices would not have been lower in the recovery, had there not been proration, but merely that under proration their movement was in no way inconsistent with the action of the general economy, except to fall somewhat short of a full reflection of the recovery forces.

The price of crude oil, on the other hand, declined more violently during the 1929-32 depression than did the general price level and then, from a lower base, responded somewhat more vigorously in the recovery, with a delayed downward reaction to the depression of 1937-38. The thought uppermost in most minds is whether proration in recent years has created an artificial level for crude oil prices. Obviously crude oil prices would have been lower in the absence of pro-

ration, but has there been actual valorization, a creation of unnatural values higher than those normal to a balanced situation? It is a difficult matter, of course, to dissect a price into its underlying causes and to measure the exact weight to be assigned each causal factor. It has been shown that restricted flow smooths the cost curve and hence exerts a leveling effect upon price. This result is inescapable under conservation efforts. But what of the market demand component of proration as contrasted with the conservation component? All that can be said to this point is that a balancing of supply and demand does not in itself carry price beyond the equilibrium level, although it does create circumstances under which extraneous forces can influence the price for a temporary period and to a limited degree. If we analyze the price of crude oil, we will find that in 1933, under the influence of the National Industrial Recovery Act, the price of crude rapidly moved from an abnormally depressed point to a dollar a barrel base. Subsequently, the price of crude oil enjoyed two additional advances—one of ten cents a barrel in the base price in January, 1936 and a second of 12 cents a barrel in January, 1937—followed by a decline of 20 cents a barrel in the base price of crude in October, 1938. None of these changes appears particularly inconsistent with the behavior of prices in general, with the exception of a lag as regards the decline.

Relative to the price of gasoline, however, the price of crude oil in the recovery period assumed a rigidity that represented an inadequate transmission of flexibility throughout the price structure. Gasoline prices were impaired by a structural change in the marketing channels of small refiners, brought about under the influence of the Madison Trial, while crude oil prices were stabilized by proration; so that, once declining business intervened, a certain disparity was inevitable which bore down upon the refiner with some severity, although this condition has not persisted in its entirety. The situation represented price distortion within the internal structure of the industry and not a transfer of unnatural prices to the consuming public—in short, it constituted an intra-industry problem instead of one that concerned the public interest. The solution to this problem appears to me to lie in the development of a keener appreciation of the functional aspect of prices on the part of buyers and producers alike. In a report to the Interstate Oil Compact Commission, prepared in part by myself, the following statement appears:

"The utility of full communication of price flexibility in its bearing upon the creation and maintenance of dynamic equilibrium is perhaps not adequately appreciated, as it is an internal problem of interprice structure and does not concern the consumers who have had and have the full benefit of price flexibility. Any tendency toward valorization in an industry is harmful because of: (a) its over-stimulus of the supply factors, (b) its adverse effect upon demand, and (c) its ultimate destructive effects upon profits and profitability. Proration may legitimately be expected to exert a smoothing effect upon prices, but price adjustments should be utilized as usual where and when needed to preserve balance. Such communication of flexibility within the whole structure does not necessarily mean lower average prices—on the contrary it might signify a higher average depending upon the general price level—but it does presuppose a price structure readily responsive to incipient maladjustments in order to bring about their prompt correction while remedy is easy; also a price structure resilient and quickly adjustable to general price movements, a quality that might be needed as a protection against an inflationary trend."

Sec. 24. *Effect upon producers:*

This question is complex, for do we mean by it the effect as compared with that under some other form of operation, or the differential effect as between various types of operators, large and small, integrated and nonintegrated? As to the first aspect of the question, the answer is clear: if unrestricted production had ruled, the strongly financed companies would have survived at the expense of the small or weak units. In regard to the differential effects of proration, the matter is more involved. The speculative fringe of the producing activity—the brokers, land speculators, and promoters—would probably have freer scope under the quick payouts of flush production practice. The rank and file of small operators, however, seem to me to have fared somewhat better than the large units, both because they are often marginal producers and for the reason that the administrative bodies are not insensible to their interests. A review of the production of the 24 largest producers in relation to the output of the entire nation, by years from 1920 to the present, reveals that the

percentage of the group of so-called majors to the national total increased from 51.6 per cent in 1920 to 64.0 per cent in 1926, but decreased from 70.0 per cent in 1927 to 57.6 in 1938. Thus in the pre-proration period, the trend, favored the large company but during the proration period the trend favored the small company. From 1932 to 1938, covering the period of active proration, the trend of the large companies' proportion changed from 60.4 per cent in 1932 to 57.6 per cent in 1937. These computations are only approximate, because they include some estimated figures, but they reflect the results of consolidations and do not exclude royalty oil and partnership interests, which usually average one-sixth; so that it is safe to say that slightly over half of the Nation's crude oil output is in the hands of small operators and royalty owners; while the largest unit produces 6.3 per cent of the country's total.

Under proration, the tendency for refiners to seek to enlarge their ownership of production has continued and apparently accelerated to some degree. Data, partly estimated, for a group of 23 of the largest refiners reveal that its net production to refinery requirements was 54.7 per cent in 1934; 56.7 per cent in 1935; 55.4 per cent in 1936; and 58.7 per cent in 1937. Despite a slight upward drift, it is noteworthy that this group still had to buy 41.3 per cent of its refinery needs last year.

A burden that has fallen upon all producers alike, large and small, is represented by the large amounts of capital required to finance delayed production. A large capital requirement is inevitable under any form of delayed production, but the problem has been aggravated in the past few years by the failure of the regulatory bodies to adapt their allocation formulas adequately to scientific principles; by cheap and redundant credit; and by the crude oil price level itself. I regard the risks of overcapitalizing the production department as a matter calling for remedy and I believe that the recent decline in crude oil prices was a functional reflection of this trend and in part corrective of it. An examination of the accounts of 15 important oil companies reveals that for the period, 1934 to 1937, the aggregate capital expenditures of this group amounted to \$1,325,244,000 of which \$787,209,000 or 59.4 per cent went into the producing division.

Sec. 25. Effect upon refiners:

Refineries may be classified in several different ways: fully integrated, semi-integrated, and non-integrated; large, medium, and small; well equipped and poorly equipped; favorably located and poorly positioned. It may be readily appreciated, therefore, that the effect of proration upon refining will vary according to the character of the plant. The effect of proration upon refiners, as the question is usually posed, usually relates to the marginal plant in difficulty at the time.

The refining business is subject to hazard because of the shifting sources of raw material supply and exposure to narrowing tendencies in the margin between crude oil prices and the sales' realization from refined products. For these reasons refiners have attempted to protect themselves from the first risk by developing pipe line systems and to mitigate the second by acquiring crude oil reserves. The technologic factor is likewise of supreme importance in refining; processes usually become obsolete before the equipment wears out, so rapid is the evolution of improved methods; and a steady inflow of capital is necessary to keep a plant up-to-date. In this setting a poorly equipped or badly positioned plant is marginal and is subjected to the pressure of changing conditions. In a broad sense, the refining business has a cycle of good and bad years, depending upon its statistical position, and this cycle does not coincide with the producer's cycle; hence the fluctuations in the refiner's margin. In 1935, 1936, and part of 1937, the refiner's margin was favorable and refiners made good money; in 1933, the last half of 1937, and 1938, the refiner's margin was unfavorable and these were poor times for the refiner. Under proration, it seems to me, crude oil is readily available to all refiners in a physical sense, for the system permits a response to demand, but profits at any given time are not evenly available. If the conservation aspect of proration results in greater recoveries and thus creates a larger and more even supply of crude, then this aspect is of advantage to the refiner. If proration is accompanied by a narrowing refiner's margin, as has for a time been the case (to which many factors are contributory), then this circumstance is harmful to the profits of low-cost plants and critical to high-cost units, although the latter suffer in the unregulated cycle also.

Small refineries are often constructed in proximity to flush sources of supply and designed for opportunistic operations. In the pre-proration days skimming

plants would spring up like mushrooms in flush fields and then pass out of existence when production subsided. Under proration their counterpart was witnessed in the East Texas field, serviced by hot oil. One can still see the dilapidated ruins of these teakettle plants from the windows of the Missouri Pacific between Longview and Kilgore.

I have examined the refinery censuses published by the U. S. Bureau of Mines as of January 1 of each year and analyzed the character of the plants that are reported shutdown. There were 158 plants reported shutdown on January 1, 1926, and 120 on January 1, 1938; the number not operating in this period ranging from a low of 54 in 1930 to a high of 210 in 1936, the last-named figure following hard upon the control of the hot oil situation. The statistics for Oklahoma and Texas have been analyzed in detail, and an interesting correlation is to be observed between size and equipment of shutdown plants and those of operating plants. For example, on January 1, 1938, the average capacity of shutdown plants in Oklahoma was 2,795 barrels daily, and in Texas, 1,728 barrels daily; while the average capacity of operating plants in the same two States was 7,378 and 10,457 barrels daily, respectively. At the same time, of the shutdown plants, only 10.0 per cent in Oklahoma and 14.9 per cent in Texas were equipped with cracking facilities, whereas these ratios for operating plants were 82.8 per cent and 50.9 per cent, respectively. It further appears from this analysis that in Oklahoma a deficiency in cracking becomes evident in plants below 5,000 barrels daily capacity, while in Texas the corresponding point is 10,000 barrels capacity. The higher limit in the case of Texas is doubtless the result of the greater accessibility of that State to the intercoastal and foreign markets.

I do not mean to depreciate the small refinery, for I know of many that are located and equipped to render fine service, and the business of such enterprises is generally profitable and stable. But the observation is warranted that there is a minimum size below which instability and lack of modern equipment often go hand in hand. After all a modern refinery is a complex chemical plant, advanced in engineering and employing the principles of mass production in its all but automatic operation. On the economic side, however, the marginal plant serves a useful purpose in augmenting supply when demand is rising and as a means for bringing crude oil into line if its price gets too high, for such plants find ways of getting crude oil cheaper if conditions warrant.

In the past few years there has been a marked development of so-called independent refiners on the Texas Gulf Coast, which would seem to indicate that the small plant if well located has not been handicapped in its ability to obtain crude oil under conditions of proration. In January, 1934, the independent refiners in that area ran to stills 23,000 barrels daily; by January, 1938, the group had grown in capacity and ran to stills 93,000 barrels daily, a four-fold increase; while in July, 1938, their runs amounted to 102,000 barrels daily. The expansion of this group, of course, was facilitated by a large export demand but the development constitutes a noteworthy example of effective accomplishment.

Sec. 26. Effect upon gasoline marketing structure:

The gasoline distributing system had its main development during a period of vigorous expansion in the petroleum industry, when the rule of capture was rampant and a period of credit expansion was under way. Its growth and structure were not only determined by the urge of a mounting supply to find points of contact with a rising demand, but also by the desires of a widening circle of individuals to avail themselves of a new means of livelihood. The resultant is a physically efficient, highly convenient, but overdeveloped mechanism, the rationalization of which would throw out of employment some portion of the 722,000 individuals reported to be employed in marketing in 1934. The marketing "problem", therefore, cannot be corrected except by creating an equivalent "social" problem. "As a practical matter, a balance between crude oil supply and consumer demand for gasoline, for the attainment of which a mechanism already exists, coupled with prices responsive to competition, is all that is needed to maintain the standards of service and to lower, but not too rapidly, the costs of distribution, with minimum disturbance to all interests concerned."

The profitability of the marketing system in oil depends not upon price levels, but upon price margins—the differentials existing between wholesale, interme-

¹ Pogue, *The Economic Structure of the American Petroleum Industry*, Bull. Amer. Assoc. Petr. Geol., Vol. 21, Feb. 1937, p. 187.

diate, and retail prices. Of these differentials the wholesaler's margin between the refiner and the dealer, and the retailer's margin between the dealer and the consumer, are the most important. The size of these margins is determined primarily by the interplay of competitive forces operating within the marketing zone, and it is not clear that the nature of the crude oil supply has any essential bearing upon this matter. Wholesale and retail margins were quite large in the early twenties, as was necessary to induce the extensive development of the marketing system to meet the rapidly rising demand. The momentum of expansion carried the construction of facilities beyond economic limits and in the late twenties margins began to narrow, contracting sharply in the depression and undergoing a modest increase in the subsequent recovery. There are too many units engaged in marketing to thrive except under relatively large margins and yet the overcrowding gives rise to competitive forces that operate in the opposite direction. It is not surprising, therefore, that pressure has been exerted to expand margins and through legislation sustain the high-cost units.

Jobber groups, under the influence of this complex situation, have made attacks upon the proration mechanism as the imputed source of their troubles. Because uncontrolled production and mounting demand characterized the era when wide margins were established, it is perhaps natural to look to restricted production as the cause of unsatisfactory margins. This conclusion, however, seems to me to be in error, for overcrowding in this field is the result of pre-existing wide margins and this congestion now renders wider margins unattainable in the presence of competition, with the present status of production having little to do with the underlying economic forces at work. This condition, too, has been aggravated by structural changes in the marketing mechanism brought about by the Petroleum Code and subsequent legal and legislative actions. It is also probable that the virtual dissociation of the retail function from refining, according to the so-called Iowa Plan under the compulsion of regulations discouraging to chain store operations, has further aggravated the marketing situation in a manner particularly disruptive of the function of the middleman. The atomistic kind of competition thus induced has, in turn, set up the incentives for certain State price-fixing laws which are now tending to undo some of the effects of previously enacted chain store restrictions. All these developments are pretty far removed from the field of proration, but they illustrate the difficulties of regulations that affect groups rather than principles.

Sec. 27. *Effects upon employment:*

The effects of proration and conservation upon employment cannot be measured quantitatively because of the multiplicity of causes entering into this factor. It is clear, however, that the existence of restricted flow requires a larger reserve and more wells than would be necessary for the same output under conditions of open flow. During the transition period, accordingly, relatively more capital and more labor will be required. This has been the case as reflected in the large number of wells drilled and new fields developed in recent years, although the increased effort represents in part a transfer of future work into the present. As proration gets to be more fully implemented in its conservation aspects, the acceleration of activity inherent in the step-up stage will flatten out, and then, even with necessary wider well spacing, the employment factor may be expected to conform more closely to the rate of growth in demand.

According to the Census of Business for 1935, published by the U. S. Department of Commerce, the number of employees engaged in the producing branches of the petroleum, natural gas, and natural gasoline industries was 121,130 with a combined income of \$167,044,000. The average income per worker was accordingly \$1,379, or 16.3 per cent more than the average income per worker of \$1,186 for the employees of all industries. In 1934, according to figures compiled under the Petroleum Code, it was reported that there were 278,000 employees on the average engaged in production, transportation, and refining, with an average annual payroll per worker of \$1,529; and 722,000 workers in marketing, with an average payroll per person of \$1,097.⁸

⁸ Pogue, *Ibid.*, p. 152.

For June, 1938, the Monthly Labor Review of the U. S. Department of Labor presented the following data:

Comparative Data on the Petroleum Industry

(Date for June, 1938)

	Avg. Weekly Earnings	Avg. Hours Worked Per Week	Avg. Hourly Earnings
	<i>Dollars</i>		<i>Cents</i>
Crude-petroleum producing.....	34.23	40.2	83.6
Petroleum refining.....	35.26	36.3	97.8
All. mfg. industries.....	22.30	34.4	64.5

These data indicate that the petroleum industry is in the forefront in its terms of work and scale of remuneration to labor. "The relationship of the industry to the problems of labor have, on the whole, been marked by a considerable degree of mutually satisfactory attainment. In the producing, refining, and transportation divisions of the business, the personnel is predominately of a specialized and skilled type, located largely in the oil fields, and forming special communities of interest. The industry has provided good living conditions on the industrial frontier where pioneering conditions exist, and the average oil camp is a striking example of convenience and even comfort in the midst, frequently, of harsh geographic surroundings. In the field of distribution, the nature of employment relationships has been in the direction of the growth of an independent business for thousands of individuals who have thus found a means of livelihood, or some additions to their income." These conditions have been coextensive with proration and the beneficial influences accompanying the stabilization induced under proration have also had their effects upon employment in associated industries.

Sec. 28. Effect upon consumers:

The consumer has been well served by the petroleum industry during the period of proration. The consumption of gasoline has increased at a notable rate, indicating that this commodity has at all times remained available within the existing buying power of the public; the quality of gasoline has improved from year to year; and the retail price of gasoline, excluding tax, has followed a downward trend since the inception of proration; and in the recovery period, 1932-1937, has displayed a lagging and subnormal adjustment to the general rising commodity price level. The supporting data underlying these conclusions are presented in Tables 2 to 4.

Reference to Table 2 indicates that in the past fifteen years the domestic consumption of gasoline has increased approximately $3\frac{1}{2}$ -fold. In the same period, the consumption per motor-vehicle has expanded from 394 gallons in 1923 to 655 gallons in 1937, or 66 per cent. In no year of this period has the consumption per motor-vehicle retrogressed from the previous year, with two nominal exceptions: 1928 when this figure dropped 3 gallons, and 1932 when a decline of 5 gallons was witnessed. Taking the period 1923-1925 as a base and calling it 100, we find that domestic gasoline consumption in 1937 stood at 272, whereas the Federal Reserve Board Index of Industrial Production, related to the same base, registered 110. Thus, not only has gasoline consumption enjoyed a remarkable growth per se, but the increase has been striking relative to the number of motor-vehicles in use as well as to the course of industrial activity. The consumer has been able progressively to augment his utilization of gasoline at a pace far exceeding the secular expansion of general business or even that of the automotive industry itself.

The gasoline available to the motorist has been increasing in utility from an engineering standpoint for the past fifteen years. This improvement has been in part due to the development of better gasoline by refiners and in part, to improvements in engine design by automotive manufacturers. The increasing efficiency of automobile engines is largely the result of raising the compression ratio; which makes necessary the use of a fuel that has a higher octane rating, or a lower tendency to knock or detonate in the motor. Statistical measure-

⁹ Ibid., pp. 191-2.

ments of a changing gasoline quality are difficult to make, but a fairly satisfactory index is presented in Table 3. It may there be observed that the percentage of high-octane components in our total motor fuel supply has increased from 34.6 in 1925 to 56.0 in 1937, while the average octane rating has improved from 60 in 1931 to 70 in 1937.

The average retail price of gasoline (excluding sales tax) in 50 representative cities in the United States has declined in the past fifteen years from 21.06 cents per gallon in 1923 to 14.58 cents per gallon in 1937. During the same period, and for the same cities, the average sales tax, Federal and State, has increased from 0.91 cents per gallon in 1923 to 5.40 cents per gallon in 1937. Expressed in dollars per annum per motor-vehicle, the sales tax cost to the motor-vehicle user has increased from \$4.37 in 1923 to \$35.37 in 1937. Recalculating the retail price of gasoline in 50 representative cities, (excluding sales tax) in the form of index numbers with 1926 taken as a base of 100, and comparing the results with the Bureau of Labor Statistics Price Index of 813 Commodities at wholesale, which has a like base, we find that in 1937 the retail price of gasoline averaged 69.5 per cent of the 1926 level, whereas the index of 813 commodities stood at 86.3 per cent of the 1926 level. Furthermore, taking the two indexes at 100 for 1932, the year of lowest commodity prices during the great depression of the early thirties, we find that gasoline in 1937 averaged 110, whereas 813 commodities averaged 133; in other words, on the rising trend in commodity prices from 1932 to 1937, gasoline increased only 10 per cent, while 813 commodities increased 33 per cent.

This more temperate advance on the side of gasoline is particularly significant in view of its coincidence with a period of vigorous application of proration of crude oil production. Reference to Table 3 will show the various price relationships by years from 1923 to 1937.

On the whole, therefore, the conclusion seems justified that the consumer has suffered no ill-effects from proration. And in so far as proration has increased the recoverable oil reserve through enabling better utilization of reservoir energy, the consumer is the ultimate beneficiary. To the extent, also, that proration proceeds to become a fuller conservation measure, the interests of the consumer and the entire economy will be furthered. As to the future, the consumer is protected by a triple line of defense—technology, integration, and imports. The technologic factor can be counted upon to provide low-priced gasoline for an indefinite period; and when I say low-priced gasoline, I mean a price with a ceiling not higher than has already been witnessed in the past ten years, barring changes in the general price level and in taxes. This view differs from that of a past Congressional investigating committee which reporting in 1923, predicted at least \$1.00 a gallon for gasoline "before long."¹⁰ Integration also, is a mechanism through which the economies of mass production and large-scale enterprise may be passed along to the public, and so long as this type of structure is not destroyed the consumer is assured of its benefits. And if unforeseen factors should raise prices unduly, foreign supplies would be made more freely available.

Sec. 29. *Effect upon national defense:*

The operation of proration presupposes and requires a potential supply of oil far in advance of the current requirements of the market. During the World War our oil fields, operating at capacity, had difficulty in meeting the rapidly mounting demands stimulated by war activity. The Oil Division of the U. S. Fuel Administration established a Bureau of Oil Conservation to effectuate economies in utilization, efforts were made on a wide front to stimulate supply, and it became necessary for a short period to institute "gasoline-less" Sundays. Under present conditions the producing capacity of our fields is sufficient to turn out a much greater volume of oil than is now demanded and this will be the case so long as the proration-conservation technique is applied to an ample reserve. Thus a surplus of producing capacity is maintained in reserve which could be released in event of national emergency. Proration, therefore, is not only the supporter of potential capacity but in respect to its conservation attributes is creating a larger supply for the future.

¹⁰ "If a few great oil companies are permitted to manipulate prices for the next few years, as they have been doing since January, 1920, the people of this country must be prepared, before long, to pay at least \$1 a gallon for gasoline." Senate Report No. 1263, March 3, 1923, p. 28.

FUTURE OF PRORATION

Sec. 30. *Evolutionary trend:*

In any system of economics, supply and demand must balance. There are three methods of production management whereby this result can be attained in respect to oil. First, supply and demand may be left to the automatic regulation of price; second, supply may be artificially restricted to balance demand; and third, supply may be regulated to conform to a set of engineering requirements, with demand and such modified supply left free to be equated by price. Until slightly more than a decade ago oil production was ruled by the first method. Then improvements in technology and a decelerating rate of growth in demand created a surplus that induced artificial action for the purpose of re-establishing a balance. With this development, the second method came into existence. As this plan spread and became implemented, it came to be appreciated that restricted flow lowered costs and increased recoveries; in short conserved the resource for fuller utilization. With this realization and the growth of engineering experience supporting the concept, proration began to approach the third method in its operation. Proration now stands in a transition stage, with its various elements in different degrees of advancement.

The ideal proration, as I see the matter, is a system of state-enforced engineering quotas keyed to optimum rates of production, as determined by exacting technical investigation, with market demand equated to this quota system by a free and flexible price. The full attainment of this end will require time, both to perfect the engineering knowledge necessary to establish the base for its functioning as well as to permit the gradual accommodation of investments and trade channels to the new plane of equilibrium. The existing machinery of proration is adapted to this purpose and the employment of market-demand quotas is a necessary instrumentality to effectuate the transition. A concerted move toward the engineering objective, sponsored by the Interstate Oil Compact Commission, coupled with a planned attack by the State regulatory bodies upon the flaws in proration administration that lead to unnecessary drilling, if conducted in an atmosphere of flexible crude oil prices suitable for preserving balance in the internal structure of the industry—these conditions, I believe, would enable the industry to progress to a position of maximum serviceability to both the public and itself.

I have examined the literature, exchanged experience with many engineers, and studied the reservoir condition in a large number of pools, and the data thus far available are suggestive that the optimum-rate concept is one that can be worked out by the engineers as a practical yardstick. The data likewise indicate that our known reserves are no larger than necessary to support such rates of output, although existing market demands would not conform closely to the component parts of a supply conditioned by a rigid application of optimum rates or as likely to manifest itself where overinvestment in unnecessary drilling has taken place. But these preliminary studies support the conclusion that, far from being distant from an ideal conservation measure, proration has this goal almost within its reach.

As to the future, proration faces two avenues of change. It may evolve either into a rigid system of pervasive regulation under which all freedom of initiative will be throttled, or else into an engineering device for maximizing the resource and minimizing costs, with an effective by-product of economic stabilization. A regimentation in the former direction will come if the system is implemented with further controls, under the urge for a quick resolute of temporary maladjustments; whereas time, technology, and economic statesmanship can bring to a successful outcome one of the most significant experiments in the economic field today. The social advantage of the latter course is that under it proration will be encouraged further to support the principles of mass production, the natural destiny of the petroleum industry.

TABLE 1.—*Prices of crude petroleum and gasoline compared with an index of commodity prices at wholesale, 1926–1938*

Years	Price of Crude Oil		Price of Gasoline		Price Index of 813 Commodities Wholesale ¹
	36° Mid-Cont.	Weighted Average U. S. ²	U. S. Motor Tulsa	Average 50 Cities ³	
	\$ Per Bbl.	\$ Per Bbl.	¢ Per Gal.	¢ Per Gal.	1926=100
1926.....	2.14	1.88	10.5	20.97	100.0
1927.....	1.38	1.30	6.9	19.29	95.4
1928.....	1.32	1.17	8.0	17.90	96.7
1929.....	1.36	1.27	7.7	17.92	95.3
1930.....	1.23	1.19	6.3	16.17	86.4
1931.....	0.63	0.65	3.8	13.00	73.0
1932.....	0.87	0.87	4.2	13.30	64.8
1933.....	0.62	0.67	3.3	12.41	65.9
1934.....	1.00	1.00	3.9	13.64	74.9
1935.....	1.00	0.96	4.5	13.55	80.0
1936.....	1.10	1.09	4.9	14.10	80.8
1937.....	1.21	1.18	4.9	14.58	86.3
1938 (9 Mos.).....	1.22	⁴ 1.17	4.5	13.45	79.0
1938 (Nov.).....	1.02	⁴ 1.04	⁴ 4.1	⁴ 13.00	⁴ 78.0

¹ U. S. Bureau of Mines.² Average retail price excluding tax: American Petroleum Industries Committee, Taxation Bulletin, Vol. III, No. 4, June, 1938, p. 35.³ U. S. Bureau of Labor Statistics, Survey of Current Business.⁴ Estimated.TABLE 2.—*Actual and relative consumption of motor-fuel by years, 1923–1937*

Years	Domestic Consumption of Motor-Fuel ¹		Average Domestic Consumption of Motor-Fuel per Motor-Vehicle ²		Federal Reserve Board Index of Industrial Production ³
	Mill. Bbls.	Index Nos. 1923–25=100	Gallons	Index Nos. 1923–25=100	1923–25=100
1923.....	158.7	83.2	394	98.3	101
1924.....	187.0	98.1	401	100.0	95
1925.....	226.3	118.7	408	101.7	104
1926.....	264.4	138.7	451	112.5	108
1927.....	299.8	157.2	457	114.0	106
1928.....	332.0	174.1	454	113.2	111
1929.....	376.0	197.2	506	126.2	119
1930.....	394.8	207.1	556	138.7	96
1931.....	403.4	211.6	596	148.6	81
1932.....	373.9	196.1	591	147.4	64
1933.....	377.0	197.7	597	148.9	76
1934.....	410.3	215.2	620	154.6	79
1935.....	434.8	228.0	624	155.6	90
1936.....	481.6	252.6	641	159.9	105
1937.....	518.8	272.1	655	163.3	110

¹ Reports of the U. S. Bureau of Mines, "Petroleum Refinery Statistics," for several years.² American Petroleum Industries Committee, Taxation Bulletin, Vol. III, No. 4, June, 1938, p. 35.³ Survey of Current Business.

TABLE 3.—*Indexes of quality of motor-fuel in the United States by years, 1923-1937*

Years	Per Cent of High Octane Constituents of Motor-Fuel Produced ¹	Average Octane Rating of Standard Grade Gasoline Consumed ²	Average Octane Rating of Premium Grade Gasoline Consumed ³
		Octane Number	Octane Number
1923			
1924			
1925	34.6		
1926	41.1		
1927	41.0		
1928	42.5		
1929	44.3		
1930	49.0		
1931	49.8	60	72
1932	51.1	61	74
1933	52.0	63	76
1934	51.3	69	75
1935	53.2	69	75
1936	55.2	69	76
1937	56.0	70	77

¹ Computed from data of the U. S. Bureau of Mines, "Petroleum Refinery Statistics," for several years.

² Per K. Frolich, Chemical Trends in the Petroleum Industry, "Industrial and Engineering Chemistry," August, 1928, p. 919.

TABLE 4.—*Actual and relative retail price of gasoline in 50 representative cities by years, 1923-1937, together with comparative data*

Years	Average Retail Price in 50 Representative Cities (ex-Tax) ¹		Average Annual Sales Tax in Same 50 Representative Cities ²		Price Index of 813 Commodities at Wholesale (1926=100) ³	Purchasing Power of 813 Commodities Over Gasoline (1926=100) ⁴
	¢ Per Gal.	Index Nos. 1926=100	¢ Per Gal.	\$ Per Motor Vehicle ¹		
1923	21.06	100.4	0.91	4.37	100.6	100.2
1924	19.47	92.8	1.48	8.22	98.1	105.7
1925	20.09	95.8	2.11	9.51	103.5	108.0
1926	20.97	100.0	2.41	11.95	100.0	100.0
1927	19.29	87.2	2.80	13.48	95.4	109.4
1928	17.90	85.4	3.04	14.39	96.7	113.2
1929	17.92	85.5	3.50	17.71	95.3	111.5
1930	16.17	77.1	3.78	21.02	86.4	112.1
1931	13.00	62.0	4.00	23.84	73.0	117.7
1932	13.30	63.4	4.63	27.36	64.8	102.2
1933	12.41	59.2	5.42	32.36	65.9	111.3
1934	13.64	65.0	5.20	32.24	74.9	115.2
1935	13.55	64.6	5.29	33.01	80.0	123.8
1936	14.10	67.2	5.35	34.29	80.8	120.2
1937	14.58	69.5	5.40	35.37	86.3	124.2

¹ American Petroleum Industries Committee, Taxation Bulletin, Vol. III, No. 4, June, 1938, p. 35.

² American Petroleum Industries Committee, Taxation Bulletin, Vol. II, No. 12, February, 1938, p. 143.

³ U. S. Bureau of Labor Statistics, Survey of Current Business.

⁴ Column 5 divided by Column 2.

EXHIBIT No. 1140-A

[Submitted by Dr. Joseph E. Pogue]

ECONOMICS OF THE PETROLEUM INDUSTRY

By JOSEPH E. POGUE, Vice President of the Chase National Bank of the City of New York ¹

This article is an advance printing of a chapter with the same title to appear in THE ELEMENTS OF THE PETROLEUM INDUSTRY, a book by various authors, under the editorship of E. DeGolyer, to be published by the American Institute of Mining and Metallurgical Engineers under the Seeley W. Mudd Fund.

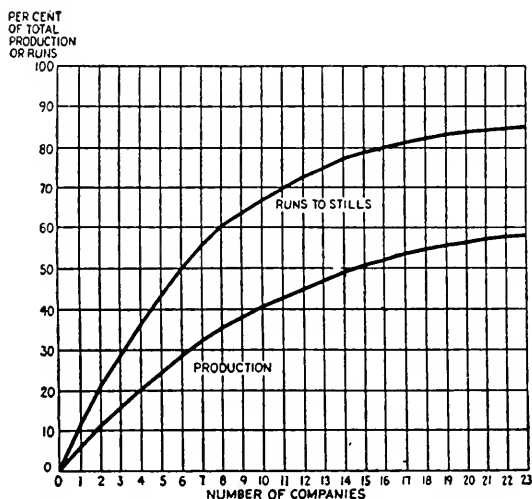
¹ For assistance in the preparation of this study, the writer is indebted to members of the staff of the Department of Petroleum Economics of the Chase National Bank, particularly Messrs. Fred G. Coqueron, Norman D. Fitz Gerald, Lyon F. Terry, and Basil B. Zavoioco.

INTRODUCTION

The petroleum industry is one of the largest and most important segments of our economy. It utilizes about 15 billions of dollars of capital, gives employment to nearly a million workers, constitutes a large customer for a wide range of other industries, and serves practically the entire economy with essential commodities. The well-being of the oil industry is consequently of prime importance to the whole country. The nature of the oil business is that of a mass-production enterprise, turning out large volumes of standardized commodities at low costs.

The dictates of mass-production have determined the economic structure of the industry, and certain characteristics of the resource have directed the manner in which this structure has been patterned. For example, oil is a liquid occurring in widely scattered localities and requiring both random and scientific efforts for discovery; it is subject to specialized forms of transportation—the pipe line and tanker—invented for the purpose; it is a mutual solution of chemical compounds convertible into multiple products and by-products; and these derivatives are required in standardized form and in small units of sale at

FIGURE 1.—CONCENTRATION OF PRODUCTION AND REFINING IN THE UNITED STATES IN 1937: CHART SHOWING CUMULATIVE PERCENTAGES OF NATIONAL TOTALS REPRESENTED BY LARGEST UNITS.



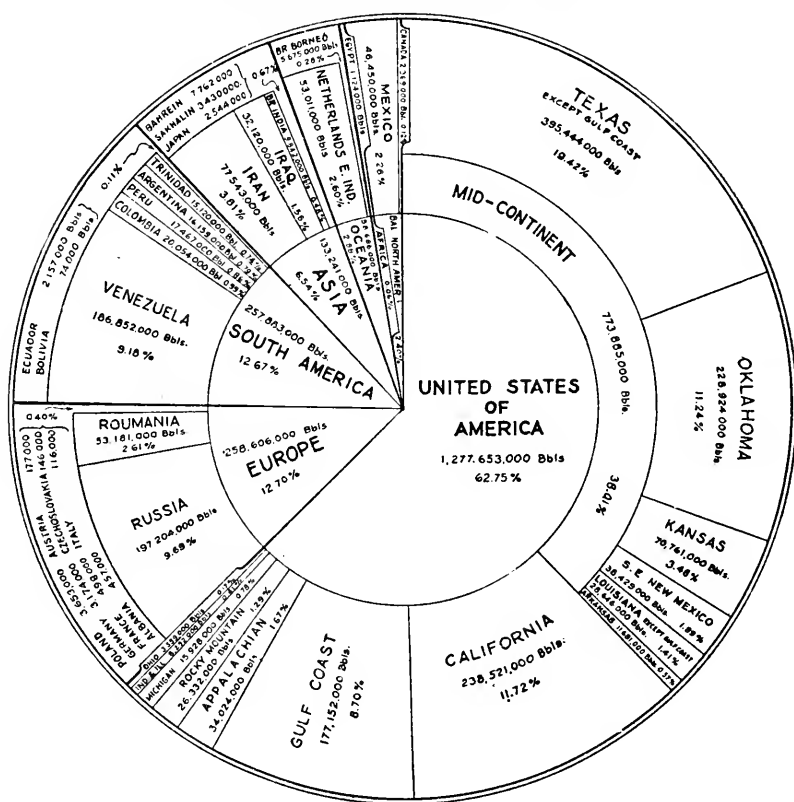
numberless points throughout the country. The industry, in consequence, assumes an hour-glass configuration, with the raw material drawn from innumerable sources, concentrated into channels of flow through the transportation and refining systems, and again deploying into myriad lines of movement to count less points of final consumption. Vast amounts of capital are essential to the operation of this system, co-ordination of the several parts is achieved through integration of activities, and the technologic factor is pervasive and of paramount importance.

Just as the industry as a whole is characterized by size and the integrated form, so the corporate structure is marked by the same pattern. In 1937 the twenty largest companies in the field of crude oil production produced 56.2 per cent of the Nation's output, the individual companies ranging from 0.9 per cent to 6.3 per cent. The remaining 43.8 per cent was produced by thousands of smaller enterprises, ranging from a small fraction of a per cent to 0.9 per cent. For the same year, the twenty largest refiners processed 83.7 per cent of the Nation's total crude oil run to stills, ranging individually from 0.6 per cent to 12.3 per cent, while the remainder was processed by several hundred smaller units. The twenty most highly integrated refiners produced 72.5 per cent of their refinery requirements, purchasing the remainder from others. Fig. 1 shows the

degree of concentration of production and refining in the United States in 1937. (See also Fig. 7.)

These relationships are sufficient to reveal that while both size and integration are conspicuous in the corporate framework, neither element is exclusive; there is room for ample competition both between the larger and smaller units as groups, and amongst the various units as individuals. About three-quarters of the business of the petroleum industry is conducted by companies engaged in all branches of the business, while the rest is transacted by units operating in only one or two divisions. Integration, however, is never complete even within the boundaries of the so-called integrated companies, and the structural patterns of the largest organizations include economic frontiers over which the flow of oil must pass.

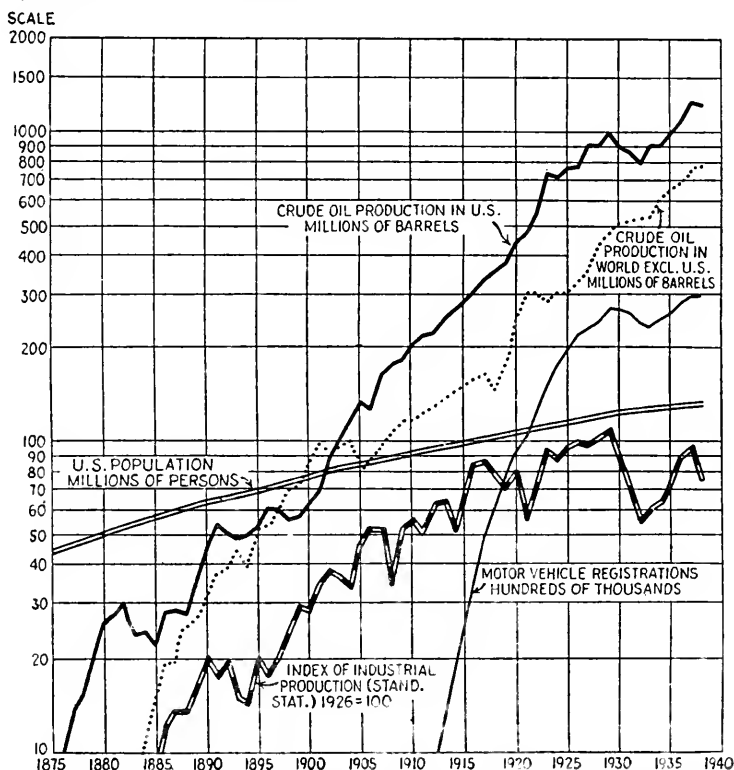
FIGURE 2.—THE WORLD'S CRUDE OIL PRODUCTION IN 1937, BY COUNTRIES AND AREAS. COURTESY OF "THE LAMP."



earth is essentially a geological venture. Oil fields are invariably creatures of the shore processes of former seas. Just as coal results from the metamorphosis of the organic matter of former plants, buried in the fresh water of inland swamps, so oil forms from the remains of marine life that are entombed in the briny muds of shallow-sea floors."

The growth of the American petroleum industry has been very rapid (see Fig. 3) and the growth factor has exerted a profound effect upon the economic structure of the business. Although petroleum was first produced commercially in the United States in 1859, the industry has only assumed a position of the first magnitude in the past thirty years, paralleling the rise of automotive transportation. The demands of new and expanding markets, in conjunction with the

FIGURE 3.—RATE OF GROWTH OF CRUDE OIL PRODUCTION IN THE UNITED STATES AND IN THE REST OF THE WORLD, BY YEARS, 1876-1938, COMPARED WITH OTHER SIGNIFICANT INDEXES.



potentialities of commodity and energy values in liquid form, formed the stimulus for the creation *de novo* of a specialized enterprise, which, finding few materials ready at hand in the general economy, proceeded to construct its full range of facilities in integrated form. To a notable degree the petroleum industry is organized along vertical, self-contained lines.

Because of its high degree of mechanization, the ratio of capital to number of employees is large; the indicated relationship being about \$18,400 of investment per worker for the entire industry. The amount of capital per worker, however, is much larger in production, transportation, and refining, where it averages \$43,500, than in the field of distribution in which about two-thirds of the total personnel is concentrated and the ratio is \$6,000 per worker. (See Table VI.) This relationship alone accords distribution a different status from the rest of the industry and binds it thereto with a weaker link than is found uniting the

other functions. Two consequences flow from its high ratio of capital to labor: The industry is particularly suited to operations by large aggregates of capital, and it is especially susceptible to losses arising from the incidence of technologic change.

In its manufacturing aspects, the petroleum industry turns out multiple products derived from the breakdown and recombination of a complex raw material. The joint-product nature of its processing creates difficulties in cost-accounting and intricate problems in balancing the supply-demand equations for the various derivatives. The laws of joint-product prices are involved and technologic change is given an extra stimulus. Not a few of the most difficult problems faced by the industry arise from its joint-product character, for activities of this type are far more complex than those that fabricate their products from many materials.

TABLE I.—*Trend of supply and demand in the American petroleum industry by years, 1932 to 1938—Data from United States Bureau of Mines*

(In millions of barrels)

SUPPLY, ALL OILS

	1932	1933	1934	1935	1936	1937	1938
Domestic Production:							
Crude oil.....	785.2	905.7	908.1	996.6	1,099.7	1,279.2	1,213.3
Natural gasoline.....	36.3	33.8	36.6	39.3	42.8	49.2	50.3
Benzol.....	1.0	1.4	1.7	1.9	2.5	2.8	1.7
Imports, crude.....	44.7	31.9	35.6	32.2	32.3	27.5	26.4
Imports, products.....	29.8	13.5	14.9	20.4	24.8	29.7	27.7
Total new supply.....	897.0	986.2	996.9	1,090.4	1,202.1	1,388.3	1,319.4
Change in all stocks.....	-41.8	+11.0	-37.8	-22.3	-23.6	+45.8	-8.7
Change in crude stocks.....	-30.5	+15.4	-17.0	-22.4	-26.7	+18.2	-32.5

DEMAND, ALL OILS

	1932	1933	1934	1935	1936	1937	1938
Domestic Consumption:							
Motor fuel.....	373.9	377.0	407.2	434.8	481.6	519.3	521.6
Kerosine.....	33.2	38.5	44.2	47.6	51.4	55.0	56.4
Fuel oil.....	308.2	316.3	332.0	366.7	410.6	442.3	409.2
Lubricants.....	16.6	17.2	18.5	19.7	22.3	23.3	21.2
Wax.....	0.9	1.3	0.9	0.9	1.1	1.1	1.0
Coke.....	9.6	10.0	7.5	6.7	6.3	5.8	5.6
Asphalt.....	12.7	11.8	13.9	15.7	20.6	21.9	24.5
Road oil.....	6.6	5.3	6.4	6.0	7.3	8.0	7.8
Still gas ¹	40.9	45.2	44.4	51.2	57.0	64.2	62.4
Miscellaneous.....	2.0	1.5	2.1	2.0	2.1	2.2	1.8
Losses and crude used as such.....	30.9	44.5	43.1	32.4	32.4	26.6	22.7
Total domestic demand.....	835.5	868.5	920.1	983.7	1,092.7	1,169.7	1,134.2
Exports, crude.....	27.4	36.6	41.1	51.4	50.3	67.2	77.3
Exports, products.....	75.9	70.1	73.4	77.6	81.7	105.6	116.6
Grand total demand.....	938.8	975.2	1,034.7	1,112.7	1,224.7	1,342.5	1,328.1

¹ Production.

An important resultant of the large amount of capital employed in the petroleum industry is found in the wide and growing application of technology to the reduction of costs, improvement in processes and betterment of products. In few industrial fields have applied science and engineering methods been so assiduously developed and utilized. Geology, paleontology, geophysics, mechanics, metallurgy, and chemistry are drawn upon in large and increasing measure. To cite a prominent example, the American Association of Petroleum Geologists, founded in 1916 to promote the application of geology to oil finding and oil production, has a membership of 2,659 (March 1938) and its monthly bulletin is an invaluable contribution to theory and practice in this field. The technologic factor is a dominant element in every phase of the business. Without a dynamic technology, the industry could not have grown to its present size and importance nor supported the ramifying range of activities dependent upon it.

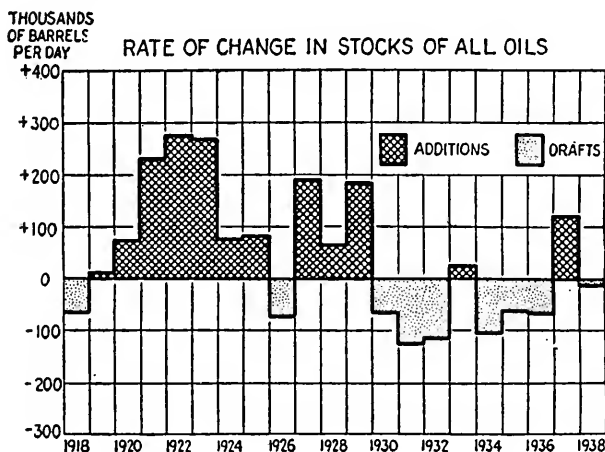
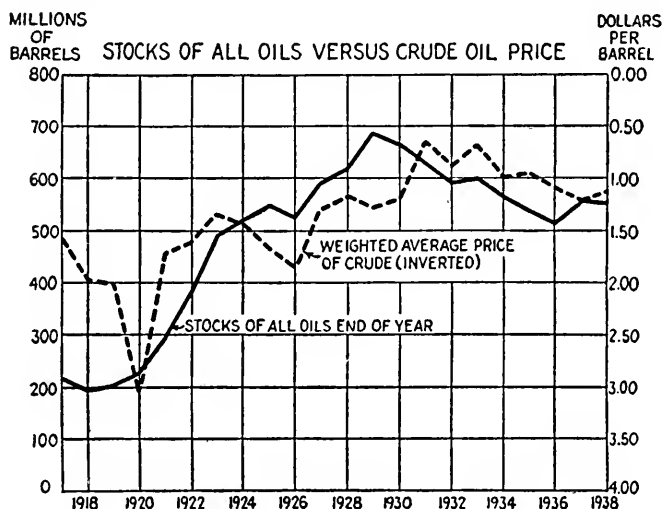
A balance sheet of supply and demand for the American petroleum industry is presented in Table I, which reflects for 1932 to 1938 the trend and interrelation-

ships of crude oil and its principal products. In Fig. 4 is shown the trend of the statistical position of the industry as summarized in the stocks of all oils.

EXPLORATION

Because of the hidden and elusive location of oil deposits, and the effort and cost involved in their discovery, the petroleum industry has never blocked out what might be termed large reserves of its raw material. Underground proven

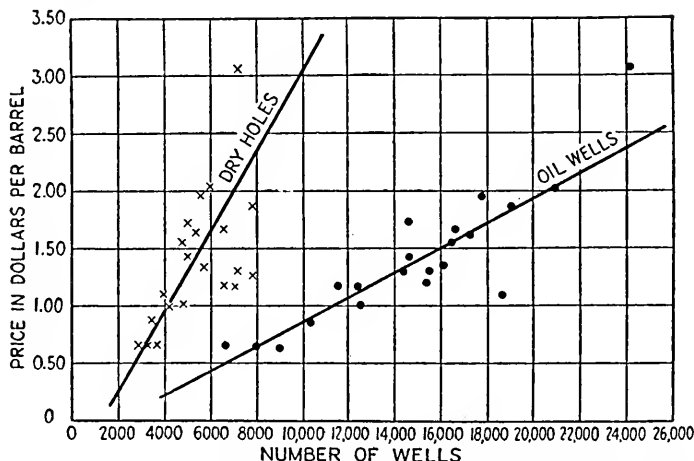
FIGURE 4.—RELATION OF STOCKS OF ALL OILS TO PRICE OF CRUDE OIL AND RATE OF CHANGE IN STOCKS OF ALL OILS, BY YEARS, 1918-38.



reserves of the order of 7 to 15 years' supply have been the rule, at least during the past 15 or 20 years, and hence a continuous stream of discovery has been necessary to maintain an adequate base for current operations. Indeed, search for new deposits is an essential part of the production enterprise and must be initiated and conducted in advance of current production requirements to insure a continuity of supply.

Exploration for crude oil, picturesquely termed wildcatting, is of two general types—random and scientific—and both kinds appear to be essential, despite the imposing advances made in recent years in the technique of exploration. The science of geology, fortified of late by the sciences of physics and chemistry, has directed an increasing proportion of the exploratory effort; but the problem of maintaining discovery is not believed by those charged with that responsibility to be solvable entirely by scientifically planned campaigns but in addition requires a multiplicity of effort and a speculative approach in order to bring into view the “unorthodox” occurrences. Discovery is a function of both the quantity and quality of effort as reflected in the number of wells drilled and the skill employed in their location, back of which lie the capital and technology employed. Both groups of elements fluctuate in availability, under the influence of price; while the technological factor, under competitive stimulus, has pursued a geometric course of advancement. The progress in the technology of oil exploration forms a brilliant, but scarcely appreciated, chapter in industrial enterprise; the most academic and abstruse phases of scientific technique have been requisitioned and turned to practical account, such as micropaleontology, seismic phenomena, electrical conductivity, and soil-gas analysis; while the core barrel, the electric

FIGURE 5.—CORRELATION BETWEEN WEIGHTED AVERAGE PRICE OF CRUDE OIL AND (A) NUMBER OF DRY HOLES DRILLED AND (B) NUMBER OF OIL WELLS DRILLED—THE INDEXES, RESPECTIVELY, OF WILDCATting AND DEVELOPMENT EFFORT. DATA ARE BY YEARS, 1915-35.



log, the torsion balance, the magnetometer, the aerial camera, and the seismograph are but a few of the devices that are used to gather clues for the effectuation of discovery.

No entirely satisfactory index of search is available, but the number of dry holes drilled constitutes an acceptable measure of the volume of effort going into exploration. Such figures are available for the entire period during which the industry has operated. The quantity of wildcatting effort is strongly influenced by price, as indicated by the graphic correlation presented in Fig. 5. While price operates as a regulator of the volume of effort, there are other elements in the equation that do not respond so readily to price—improvements in the art, chance, and the varying size of fields—and hence there appears to be no practical way in which discovery can be accurately planned or regulated so as to be kept in phase with requirements. This circumstance constitutes a problem in industrial equilibrium which must be solved indirectly, for it would be hazardous in times of oversupply to place artificial restraints on search; such efforts might appear logical for the short-term but they would tend to create shortages in the future.

Thus discovery, the objective of all exploration, is a function not merely of the volume of effort going into this enterprise, which varies with the price

level, but is strongly influenced by the technical skill utilized in locating and drilling wildcat wells and, for the short-term at least, by the element of pure chance. Hence we find an all too imperfect conformance between rate of discovery and price of crude oil. Table II shows for periods from the inception of the industry to the present, the rate of oil discovery in the United States in comparison with the price of crude oil and the rate of search (as indicated by the number of dry holes). It will be noticed at once that volume of discovery has not been proportional to price and that the oil found per dry hole drilled has displayed a sharp upward trend in the past 15 years in undoubted response to advances in technology.

For the entire life of the American petroleum industry, 179,000 barrels of oil have been discovered per dry hole drilled, and the range of response to the volume of effort has been from 91,000 barrels per dry hole to 309,000 barrels per dry hole, a wide amplitude. It is noteworthy that the highest response has been obtained in the past 3 years; and for the past 8 years the response has averaged 266,000 barrels. Accordingly, the way to discover 1 billion barrels of oil is to drill 4,000 dry holes! The search for oil is motivated by a number of factors aside from price, such as the speculative reward for success, the desire of refiners to insure a backlog of supply, the restriction of production to efficient rates, tax considerations, cheap money, and even the fear of inflation. Thus the discovery rate in oil is one of the most difficult concepts to deal with and constitutes an unsettling element if it gets out of phase with the requirements of the industry.

TABLE II.—*Relation of wildcatting effort (number of dry holes drilled) to crude oil discoveries and price, by periods, 1859 to 1938*

Period	Production ¹	Estimated Crude Oil Discovered ²	Weighted Average Price Crude ¹	Number of Dry Holes Drilled ³	Oil Discovered per Dry Hole
	Million Barrels	Million Barrels	Dollars per Barrel		Barrels
1859-1900.....	1,004	3,653	1.02	32,009	114,000
1901-1905.....	510	1,848	0.82	18,057	102,000
1906-1910.....	864	1,495	0.69	16,423	91,000
1911-1915.....	1,239	2,718	0.75	16,623	164,000
1916-1920.....	1,813	3,180	2.03	27,853	114,000
1921-1925.....	3,240	4,457	1.54	28,153	158,000
1926-1930.....	4,479	10,818	1.35	36,901	293,000
1931-1935.....	4,447	4,479	0.83	19,744	227,000
1936-1938.....	3,592	5,540	1.14	17,926	309,000
Total.....	21,188	38,188	1.21	213,689	179,000

¹ Data from United States Bureau of Mines.

² Data partly from Wallace Pratt (op. cit.), adjusted by author.

³ Data from Oil and Gas Journal and United States Bureau of Mines.

The probability of discovering oil by drilling a wildcat test is a matter of considerable interest to the oil producer. The ratio of dry holes to total wells drilled, which in recent years has ranged from 20 to 30 per cent and in 1933 was 22 per cent, does not indicate the chances taken in exploration, for most completions are made in proven territory. According to studies made by Lahee⁸ for the year 1937, however, dealing purely with wildcat wells, it was found that about 1 in 8 of all wildcat tests was successful. This study further indicated that exploration based upon technical data was almost 3 times as effective as random effort. Lahee found that out of every 100 wildcat wells drilled, 82 were located on the basis of geological or geophysical work, whereas 18 were located without apparent technical logic; the former category yielded 1 strike in 6.5, whereas the latter resulted in only 1 strike in 17.

The size of the proven reserve of crude oil in the United States at the beginning of 1939 was upwards of 17 billion barrels, not counting oil available upon the application of secondary recovery methods and oil yet to be found. A committee of prominent geologists, under the auspices of the American Petroleum Institute, made an estimate of the Nation's proven reserve as of January 1, 1939, and arrived at a total of 17.3 billion barrels, against estimates

⁸ F. H. Lahee. Further data on Wildcat drilling in 1937. Bull. Amer. Assoc. Petr. Geol., vol. 22, Sept., 1933, pp. 1231-1238.

(subsequently revised upward) of 15.5 billion barrels for January 1, 1938; 13.1 billion barrels for January 1, 1937; and 12.2 billion barrels for January 1, 1935. These estimates make no allowance for possible reserves in untested areas, but represent only the volume of crude oil recoverable by present known methods from fields now completely developed or drilled, or sufficiently drilled and explored to permit of reasonably accurate calculations. There is considerable evidence to suggest that official estimates of the reserve have been conservative and that revisions, in the light of improving production methods, are likely to reveal larger totals than those heretofore announced.

The 1939 reserve estimate of the American Petroleum Institute is shown by States in Table III, where it may be observed that 54.5 per cent of the total is in Texas and 18.4 per cent, in California. Comparison of the indicated reserves with the 1938 levels of production indicates that the total proven reserve has a life of 14.3 years, whereas among the States this factor varies from 2.2 years for Michigan to 21.3 years for Montana. It is apparent that the proven reserve is not a fixed quantity but is a variable, subject to change upon alterations in price and improvements in technology—both continuously taking place—and upon the shifting relationships between new discoveries and production.

There are few subjects that have been more widely misconstrued than the reported size of the crude oil reserve. Estimates of the known reserve of recoverable oil have been made repeatedly over the past thirty years by various experts and committees and invariably the reports of these studies have aroused concern in respect to the apparent shortness of the country's oil future as expressed in the number of years over which the indicated reserve would stretch at the current rate of production. Such inferences have overlooked the true nature of the proven reserve, which is merely that of a working stock in advance of production. The proven reserve is quite a different matter from the volume of oil yet to be produced, for the former represents only the apparent volume of blocked out oil, whereas the latter includes oil yet to be discovered as well as additional oil to be recovered from known deposits by improved methods. In fact, one of the prime causes of the recent increases in the indicated reserve is the revision brought about by the increased efficiencies of improved technique and delayed production. The size of the proven reserve gives no clue to, and logically cannot be expected to reveal, the imminence or remoteness of scarcity. The only basis for anticipating an ultimate shortage of domestic petroleum is a line of reasoning based upon the principle of elimination—that each pool found means one less to be discovered in the future—but the sheer magnitude of the proven reserve sheds little light upon the questions: How much oil is yet to be found? and to what extent will recoveries be increased by improved technique? The factual responses to these queries have upset all inferences in the past.

TABLE III.—*Estimated proven crude oil reserve in the United States on January 1, 1939 (data from American Petroleum Institute)*

Rank	State	Reserve	Per Cent of Total	1938 Production	Indicated Life in Years
		<i>Million Barrels</i>		<i>Million Barrels</i>	
1	Texas	9,447.8	54.5	475.6	19.9
2	California	3,188.2	18.4	249.7	12.8
3	Oklahoma	1,162.4	6.7	174.9	6.6
4	Louisiana	1,040.3	6.0	94.8	11.0
5	New Mexico	763.3	4.1	35.8	19.6
6	Kansas	613.2	3.5	59.6	10.3
7	Wyoming	261.1	1.5	19.0	13.7
8	Illinois	242.8	1.4	23.9	10.2
9	Pennsylvania	200.8	1.2	17.4	11.5
10	Arkansas	188.5	1.1	18.1	10.4
11	Montana	104.6	0.6	4.9	21.3
12	Michigan	42.7	0.2	10.2	2.2
13	New York	40.0	0.2	5.0	8.0
14	Kentucky	37.5	0.2	5.8	6.5
15	Ohio	26.4	0.2	3.3	8.0
16	West Virginia	24.8	0.1	3.1	8.0
17	Colorado	17.1	0.1	1.4	12.2
18	Indiana	6.0	—	1.6	3.8
	Total	17,348.2	100.0	1,213.1	14.3

The basic consideration regarding the future supply of petroleum is not the size of the *proven reserve* but the effective magnitude of the *future reserve*. To this point no quantitative answer can be provided. Indeed the problem is not so much one of finding a way of drawing aside the veil that obscures the future, as it is of maintaining an economic mechanism competent to handle any contingency. The committee of geologists and engineers that drew up the 1936 reserve estimates for the American Petroleum Institute, after considerable deliberation, reached this conclusion:⁴

"Large areas within the United States, underlain by sedimentary rocks, are only partly explored for oil reserves, whereas the areas already explored by the best current methods are relatively small. No satisfactory method has been found for assigning a numerical estimate to the amount of oil recoverable from undiscovered deposits. The oil to be discovered in the future is so concealed from observation that an estimate of ultimate reserves in terms of barrels is obviously impracticable. However, we do have a definite, although incomplete, knowledge concerning the existence in an important part of these slightly explored areas of extensive deformation in sedimentary rocks which are productive in neighboring districts, of deeper prospects, and of other geologic factors which are favorable to the occurrence of oil. This gives reason to expect that ample discoveries will be made to meet national requirements for a period of indeterminate length. There is no evidence that discoveries will not continue to be made for many years."

In his presidential address⁵ before the American Association of Petroleum Geologists on March 19, 1936, A. I. Levorsen, after considering the dominance of anticlinal oil in past discoveries and viewing the future potentialities of flank sands, regional unconformities, and up-dip wedging of porosity as oil reservoirs, expressed this opinion:

"One does not appreciate the possibilities of this sort of geology until time and thought have been given to it, and I venture to say that upon investigation you will each of you reach the conclusion, as I have, that there are yet to be discovered oil and gas reserves almost without limit by those who may become adept in stratigraphic analysis. . . . Differing from our past methods, the possibilities for stratigraphic production cannot be quickly exhausted . . . the day of geology, as applied to the practical problem of discovering a continuing oil reserve for our Nation, is just dawning. There can be no doubt that an abundance of oil in terms of national demand remains to be discovered."

PRODUCTION

The production of crude petroleum, under conditions prevalent in the United States, involves a stubborn economic problem, or rather an issue that became obdurate when the industry matured and technological progress reached a state of high proficiency. This problem is the resultant of the asymmetrical character of the production mechanism whereby it accelerates more readily than it decelerates. The principal cause of this unbalanced reaction is the incidence of a special type of competition, arising from a legal technicality, superimposed upon the normal elements of industrial competition. This anomaly is the rule of capture, which ascribes ownership not to the oil in place but only to the oil when reduced to possession. Thus, wherever an oil field is composed of areas of divided ownership, drilling is motivated not primarily by economic conditions (as reflected in price) but by the necessity imposed upon each operator to capture his oil before it is drained by his neighbor. As a result of this circumstance, oil fields tend to be drilled and produced rapidly, without due regard to the requirements of approved engineering practice and the needs of the market.

The key to an understanding of the oil industry is a clear perception of the incidence of the rule of capture. The single oil pool is the natural unit of property, but owing to the usual circumstance of subdivided ownership, the lease is the common-law unit. Because of the fancied analogy of oil to wild game, our courts have recognized that whatever the landowner could withdraw from the common reservoir, he could take and keep, irrespective of its effect upon his neighbors; and that the only defense the neighbors had was to do likewise. It

⁴ Bulletin American Association of Petroleum Geologists, Vol. 20, 1936, pp. 8, 9.

⁵ See Oil & Gas Journal, March 26, 1936, pp. 41, 42, 44, and 48.

is a remarkable fact that what would appear offhand to be an innocuous detail is a matter of profound importance to the operations of a major industry. This rule is imbedded in the customs and traditions of the oil producers, is reflected in the covenants between lessors and lessees, and traces through the ramifications of subdivided royalty interests that give hundreds of thousands of individuals in all walks of life a legal interest in the manner in which oil is produced. Since under the rule of capture each operator is forced to protect his property from drainage by others, else he suffer not only the loss of oil capture from him but also forfeit the lease itself for neglecting the interests of the lessor, a powerful incentive is created making for rapid development.

The setting for the rule of capture is the divided oil pool. Most oil pools in the United States are owned by competing operators. This comes about not primarily because the land was so held before leasing—although that is often the case—but because of an important principle, the division of risk. Oil discovery is so speculative and costly that the custom is for operators to share the risks and divide the rewards and thus avail themselves of the law of averages. In this way the small operator can compete with the large company in the discovery of oil. It is doubtful whether the discovery of oil can be standardized and conducted along lines of a prearranged plan; the principle of multiple effort must be invoked. A substantial part of our oil is found by daring individuals following unorthodox leads, and such enterprise should not be discouraged.

During the greater part of the life history of the American petroleum industry, perhaps up to as late as 1920, the rule of capture, with its compounding effect upon competition, was not a wholly unsatisfactory factor in production. It gave speed to the enterprise, supporting and sustaining the rate of expansion that the requirements of consumers demanded. It led to serious wastes, too, for it was antipathetical to the best engineering practice; but these losses must be looked upon largely as the price paid for rapid growth, a cost that society was presumably willing to incur as preferable to delay. At the same time it was inevitable that the rule of capture would eventually become untenable, once the conjuncture of maturing demand and advancing technology was capable of creating equilibrium without the extraneous aid of inter-lease competition. At exactly that conjunctural point, the rule of capture became superfluous and since that time the economic organism has been in the process of eliminating this factor from its mechanism. Intrenched in law and in custom, the process of its eradication has been slow and indirect, unperceived by most observers. For the past 10 to 15 years there has been a gradual weakening of inter-lease competition and a progressing tendency for oil fields to be operated as units, or as if they were units, with inestimable gain in operating efficiency and great reductions in physical wastes. Considerable distance is yet to be traveled, but the trend is in the right direction and even in the period mentioned a revolution in the *modus operandi* of the producing division has taken place.

Proration may be interpreted as a means for mitigating the effects of the rule of capture. It has appeared on the scene at various times in the past during temporary periods of oversupply, only to disappear again when equilibrium re-established itself. Proration, however, only assumed the status of an institution, grounded in State conservation laws, when oversupply became chronic; that is, when equilibrium could not be regained under the free operation of the rule of capture. Proration, as we now know it, was initiated in Oklahoma in 1926 and from that beginning has expanded until it has now become the accepted procedure in practically all important producing areas of the country.

Proration literally means the allocation of demand among competing producers on a pro rata basis, but the term now carries a much broader significance for it is employed to describe the entire process by which the production of crude oil in the United States is regulated. There is naturally much confusion of thought on the subject, for proration is an evolving system of control based upon principles of conservation and equity and embracing a body of practices that are tending to adjust themselves to the needs of the situation but are subjected to varying and divergent influences in the process. As it is now constituted, proration is a planned production measure designed to prevent waste, insure ratable takings, and balance supply and demand. The procedure is administered by State regulatory bodies through use of the police power of the States under authority of State conservation laws⁶; the practice is supported by a considerable degree of voluntary conformance on the part of operators; and the Federal Government has accorded its co-operation by providing advisory quotas, circum-

⁶ In California proration is voluntary and not under legal enforcement (1938).

scribing imports, checking movements of hot oil in interstate commerce, and ratifying an Interstate Oil Compact. In the course of the past twelve years, this regulatory system has become an institution with a framework of laws, court decisions, administrative bodies, committees, trade practices, and traditions.

Although initiated to correct conditions of overproduction, proration has its justification as a fundamental conservation measure, and its development centers around that theme. The practice of proration has clearly demonstrated that restricted flow of oil wells conserves the reservoir energy and results in higher recoveries and lower over-the-life costs than would be experienced if wells were produced under conditions of open-flow. The advantages of restricted production are now well understood, but these gains are not attainable under the competitive operation of leases in subdivided oil pools. Only by an actual pooling of leases in the single reservoir—unit operation—or by the imposition of rules of production that come to the same effect—proration—can the oil pool be handled according to the dictates of advanced engineering practices. Consequently a curtailment of flush production promotes recovery and operating efficiency while leading to improved economic balance.

The ideal way to produce an oil field is to restrict the flow to a rate that results in the most effective utilization of the reservoir energy. In this manner the greatest practicable recovery of the oil is achieved and resort to pumping is deferred until near-exhaustion of the deposit. The form of the reservoir energy is complex, varying from pool to pool, but it is generally represented by the driving power of edge- and bottom-water under hydrostatic pressure and by the compressed gas associated with the oil. The energy inherent in the gas manifests itself as a propelling force available upon the release of pressure, and the dissolved gas renders the oil more liquid and reduces its tendency to stick to the sand grains. Fortunately the beneficial effects of water drive and associated gas can be maximized by adjusting the flow to the most efficient, or optimum, rate, which is subject to more or less exact determination if sufficient engineering effort is devoted to the matter.

In the presence of the subdivided pool, which the prevalent type, an additional procedure is necessary; namely, rates of withdrawal from the several properties in proportion to the available oil underlying each. This qualification is essential on two counts; first, to maintain the reservoir energy in continuing equilibrium in order to support optimum recovery; and second, to preserve equity as between the competing property owners. If the reservoir energy is not held in equilibrium but important differentials are permitted to develop in the reservoir as a result of unbalanced withdrawals, optimum recovery is unattainable and each operator must resort to the rule of capture to preserve his equity.

Conservation of oil, accordingly, can be attained by any system of operations that restrains the flow of the oil pool to the most efficient rate and enforces ratable withdrawals amongst the competing operators in the pool. The determination of the optimum rate and of the ratable-takings formula is primarily an engineering problem. The objective is to deal with the reservoir energy, rather than the oil itself, but there are two schools of thought as to the best utilization of the reservoir pressure: The one regards it as a force to be spent, so much for each unit of production; the other, as a force to be conserved until virtual exhaustion of the oil. Upon further engineering research the latter point of view will probably be found to be preferable, at least in fields where a water drive can be utilized, for substantial pressure drops induce a non-uniform encroachment of the water and, in gas-saturated pools, permit gas to come out of solution, to the detriment of ultimate oil recovery.

Conservation as here defined was not attainable during the period of rapid growth in the industry, for then open-flow operations, even under the stimulus of the rule of capture, were required to meet the mounting demand. Curtailed flow, the essence of conservation, became possible only after a large potential supply of oil had been made available. Hence it was inevitable that an excess of capacity had to develop before demand could be filled by production throttled down to an efficient rate. Thus in the evolution of the industry, the transition from open-flow to conservation practices had to be in a setting of overproduction, or at least, potential overproduction, and proration developed as the instrumentality by which the physical basis for adequate conservation practices could be arrived at.

Proration has now evolved to the point where it clearly rests upon two thoroughly established principles—conservation and equity; and involves three procedures—curtailment of flow, ratable takings, and an adjustment of restricted flow to balance the measured requirements of the market. The plan is administered by means of a quota system by which it is sought to bring into accord the require-

ments of waste prevention and market demand, without violation of the dictates of equity. In theory no pool is permitted to produce more than its market demand, it being recognized that output in excess of market demand leads to storage, physical waste, and economic instability; whereas restriction to market demand or to the most efficient rate, whichever is lower, results in effective conservation and economic advantage. It is difficult to differentiate accurately between the stabilizing effects derived from curtailment to efficient rates and those superimposed by the functioning of market-demand quotas, because any degree of restriction upon output necessitates operations under some measure of back-pressure.

The casual view that proration in essence is purely a stabilization measure is in error, for a substantial portion of the stabilization observable in practice is the automatic resultant of restricted flow and ratable takings instituted on the basis of conservation. It is impossible, for example, to operate an oil pool under back-pressure without leveling out the production curve and thereby flattening the cost curve; in consequence a smoothing effect is transmitted to price. Under the practice of proration, therefore, entirely aside from the application of market-demand quotas, a significant by-product of economic stability is inevitable.

In the operation of any economic system, of course, supply and demand must balance. Accordingly, if oil pools are to be restricted in the interest of conservation, the aggregate curtailment must conform to the dictates of demand, if consuming power is not to be regulated. Accordingly, the employment of market-demand quotas is a practical expedient to make the system workable, for existing demand would not coincide in all its ramifications with the various elements of supply if keyed to their respective optimum rates and hence an additional element of equilibration is necessary. Nevertheless the need for this additional element is probably not as great as generally believed, for judging from preliminary studies, the difference between the aggregate optimum production rate of our oil fields and market demand is not substantial; and consequently proration can be directed so as to approach a plane of natural equilibrium between demand and a supply restricted according to engineering principles. At this stage, dependence upon market-demand quotas will be greatly lessened, if not entirely removed. This conclusion deserves the greatest emphasis, for the tendency in the industry is to overlook the advanced degree of evolution and hence to miss the point of greatest significance in the economics of the petroleum industry.

Although proration appears to have its logical goal almost within its grasp, it is not assured that this instrumentality will be permitted to follow its proper course to such an outcome. If the potentialities of proration were clearly envisaged by all concerned, this danger would not exist; but there are many who look upon proration solely as a stabilization device that is faulty because it fails to deliver all that is hoped of it on this score and hence desire to implement it with additional controls designed to achieve these ends. Such a course of development, in pursuit of transient and illusive gains, will lead to a condition of progressive economic regimentation that will destroy the vigor and flexibility of the industry, to the detriment of its profitability as an industrial enterprise and its serviceability to the public. On the other hand, the steps needed for the successful passage of proration into a perfected conservation measure, carrying with it a high degree of derived economic stabilization at the expense of minimum interference with competitive processes, are not complicated nor beyond reasonably early attainment.

The following five-point program is suggested as a means to more effective proration:⁷

1. The development of the optimum rate concept as a yardstick for restricting the individual oil pool.
2. The standardization of the application of bottom-hole pressure readings for the effectuation of ratable takings.
3. The harmonizing of drilling incentives with the requirements of delayed production.
4. The employment of market-demand quotas to reconcile the interim differences between optimum-rates and market requirements.
5. The preservation of flexible markets to proportionate capital flow to economic requirements and prevent the development of intra-industry pressures.

Proration is based upon the power inherent in the State governments to regulate production practices in the interest of waste prevention. This power is

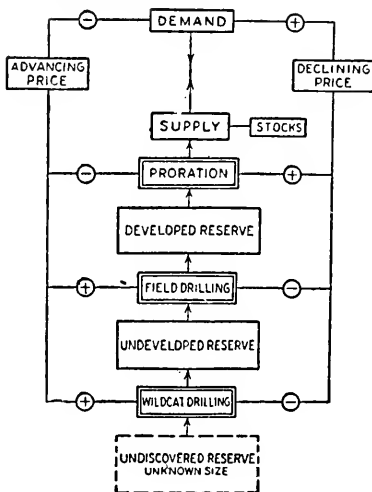
⁷ For a fuller discussion of these points, see J. E. Pogue, A Design for More Effective Proration, Amer. Inst. Min. & Met. Engrs., New York, Feb., 1939.

expressed through conservation statutes and administered by regulatory bodies such as the Texas Railroad Commission, the Oklahoma Corporation Commission, and the like. The litigation through which the conservation laws have passed has established three principles, as follows: The State, in the interest of protecting its natural resources, may legislate against waste on lands privately owned; the State may by legislation regulate the correlative rights of the common owners of an oil pool so as to insure ratable withdrawals; and the State, on common-law principles, may abate as nuisances operations that endanger life or property.

Ample power, therefore, resides in the States to effectuate modern and efficient conservation measures. The States more advanced in attention to the subject have developed creditable conservation laws and further progress is under way, both in the improvement in the basic laws in the more backward States, as well as in the interpretation of the existing laws by the courts. In addition to the conservation statutes of the oil-producing States, there are other types of machinery involved in the proration mechanism, such as the Interstate Oil Compact, the Connally Act, excise taxes on imports, and the advisory production quotas prepared monthly by the U. S. Bureau of Mines. It will be observed that these supplementary implements involve both mandatory and co-operative principles.⁸

The institution of proration has thus modified the mechanism whereby supply and demand are equated. Formerly subject to regulation by price alone, supply is now restricted at the well-head by proration which therefore acts as a substitute for price at this point in the system. Price, however, is not thereby rendered inoperative in its functional capacity but is merely moved to a sidewise position, so to speak, where it continues to influence demand and the sequence of events—search, discovery, and drilling—that lie back of production proper. The relation of price to the various elements is illustrated in Fig. 6. (See also Fig. 5.) At present the operation of proration permits supply to accumulate in potential form behind the barrier of proration, which tends to create a condition of strain and unbalance if the process is carried too far. It was primarily the rise of the so-called potential in the period 1929–1931 that led to

FIGURE 6.—DIAGRAMMATIC SKETCH OF ECONOMIC STRUCTURE OF PETROLEUM INDUSTRY UNDER PRORATION, SHOWING EFFECT OF PRICE UPON VARIOUS PARTS OF THE SYSTEM. PLUS SIGN SIGNIFIES STIMULUS; MINUS SIGN, RETARDATION.



⁸ A good description of the legal and administrative machinery may be found in Ely, *The Conservation of Oil*, *The Harvard Law Review*, Vol. LI, No. 7, 1938, pp. 1209–1244. See also Ely, *Oil Conservation Through Interstate Agreement*, Fed. Oil Cons. Board, Washington, 1933.

the collapse of the price structure in that period and the same sequence of events was manifest in 1937-1938. The building up in any field of a potential in excess of that required to maximize the utilization of reservoir energy and to minimize costs represents a fixation of capital in nonproductive form that should be avoided.

In the development of the administrative aspects of proration, the creation of means for bringing about equilibrium between drilling rates and production rates has lagged behind the progress made in other directions and hence a maladjustment has appeared which calls for correction. In the pre-proration era, under the reign of the rule of capture, wells were drilled densely and as rapidly as possible, for in no other way could the production from a single property, as contrasted with the pool, be maximized, although equal speed and well density on the part of all operators in the single pool cancelled out the individual advantage.

With the establishment of proration, however, two new factors appeared: it was discovered that the conservation of reservoir energy was a partial substitute for drilling, since under pressure-maintenance methods fewer new wells are needed than under open-flow practice; and it became apparent that if the rate of production is to be restricted and therefore the pay-out period lengthened, then a concomitant spreading out of the investment period should likewise be provided for. Both of these considerations in the course of the past few years have entered the consciousness of operators, and have even received the cognizance of the regulatory bodies, as exemplified in well spacing rules in many pools and insistent discussions of the subject at Commission hearings. But by and large the drilling concept is less advanced than is desirable; and the principle that the State fails to do equity if it compels deferment in oil withdrawals without at least making it possible for the operator to retard his investment commensurably is yet to be established, although the matter appears to be getting close to that stage.

As a result of this unadjusted element in the handling of proration, unnecessary wells in great numbers have been drilled in the past few years and the allowable production per well has declined to the point where the whole subject is coming in for active attention. Expressed in other terms, production has been largely divorced from the effects of the rule of capture, but drilling has not been freed from this influence in equal degree. In the administration of proration the well, rather than the underlying oil reserve, has usually been accepted as the ultimate unit for allocation of demand. This policy creates artificial incentives not only for drilling more wells than are necessary to extract the oil but also for drilling in advance of economic requirements, and hence capital is employed prematurely and in unnecessary amounts. The maintenance of equity amongst operators and balance in capital-flow can be effected through the recognition of the available oil as the unit of proration and the utilization of this factor as the basis for lease allowable.⁹ In this manner the pressure to drill unnecessary wells would be reduced promptly and the conservation of capital made an essential by-product of the conservation of oil. Once this is done, some of the most perplexing difficulties now plaguing the regulatory bodies and the oil operators will be resolved.

The question has frequently arisen as to whether proration has not led to the progressive concentration of production in the hands of large producers. Fig. 7 shows the gross crude oil production of the 25 largest producers and of the former Standard Oil subsidiaries and affiliates, by years from 1920 to 1937, expressed in percentages of the total output of the country. The data have been compiled from published statements and scout reports, and therefore include some estimated figures, but the chart reveals that the proportion of the so-called major units has actually displayed a slight downward trend during the period of proration.

The improvements in production methods over the past 10 to 15 years have been scarcely less striking than the economic changes that have transpired in this field. Depths commercially reachable by the drill have been more than doubled, and a 10,000-foot hole is no longer a novelty; in 1938 a well in California reached a depth of 15,000 feet. (See Fig. 8.) The proportion of oil recovered from the reservoir has greatly increased and the knowledge and utilization of reservoir pressaures have been greatly augmented. Ingenious methods have been developed for going back and reworking depleted fields; in

⁹ Much can even be accomplished on the part of the administrative bodies by the simple expedient of introducing an acreage factor into the allocation formula.

FIGURE 7.—TREND OF CONCENTRATION OF GROSS CRUDE OIL PRODUCTION IN THE UNITED STATES, BY YEARS, 1920-37, SHOWING MILD DOWNWARD TREND DURING PERIOD OF PRORATION, 1927-37, REVERSING MILD UPWARD TREND IN PRE-PRORATION PERIOD.

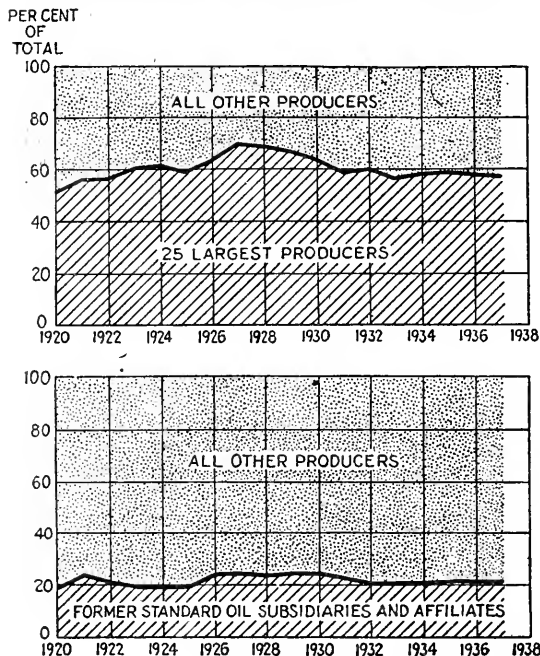
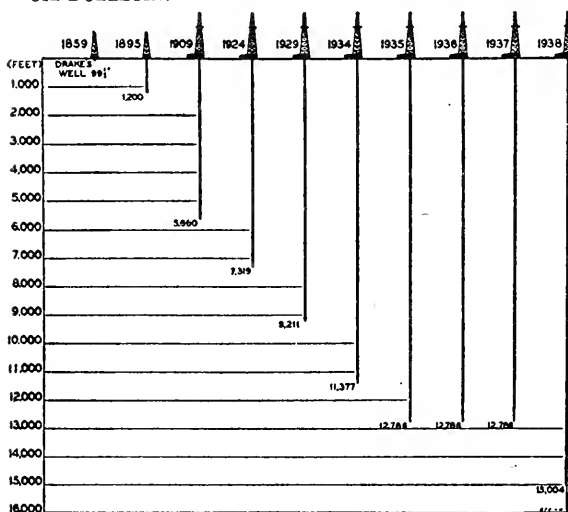


FIGURE 8.—TREND OF DRILLING DEPTHS IN THE UNITED STATES, AS INDICATED BY DEEPEST WELLS COMPLETED, FROM INCEPTION OF INDUSTRY TO 1938. DRILLING TECHNIQUE HAS RADICALLY INCREASED THE RESERVE POTENTIALITIES OF THE NATION. FROM THE "UNION OIL BULLETIN."

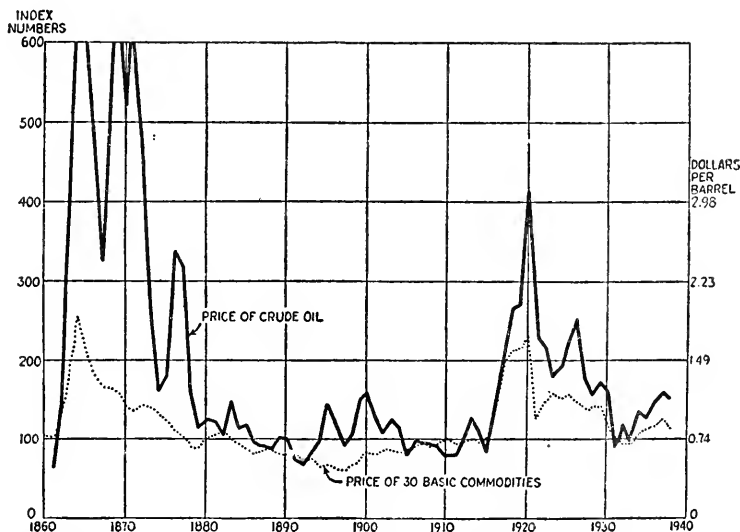


the old Bradford field of Pennsylvania, for example, water flooding has commercially developed a larger reserve of oil than was extracted during the past seventy years by conventional flowing and pumping. The achievements in the field of production engineering, indeed, have been almost as notable as those in the art of exploration. The two combined represent a factor that has contributed signally to the reduction of costs and the enlargement of the available supply, and has gone far toward offsetting the physical losses engendered as a result of inter-lease competition under the rule of capture.

According to the Petroleum Administrative Board¹⁰ of the U. S. Department of Interior, which has made an exhaustive accounting study of the cost of producing crude oil in the United States, the average production cost was 86 cents per barrel in 1931, 81 cents per barrel in 1932, 71 cents per barrel in 1933, 80 cents per barrel in 1934, and 80 cents per barrel as the average from 1931-1934. For the entire period, and covering the production reported, it was found that 10 per cent of the oil had a production cost of under 40 cents per barrel; 50 per cent of the oil, from 40 cents to 79 cents per barrel; 25 per cent of the oil, from 80 cents to \$1.19 per barrel; and 15 per cent of the oil, from \$1.20 to \$4.40 per barrel and above. These figures reveal a wide amplitude in production costs, which is caused primarily by the greatly varying size of wells. This cost range, of course, constitutes a difficult problem in utilizing price alone as a regulator of production. Prices disastrous to stripper wells are required to render the flow of large wells uneconomic. A neglected element in the practice of crude oil accounting is the cost of replacing the produced oil by means of new discoveries; accounting systems in vogue do not resolve this question. In the long run, replacement cost must be the deciding factor in the price of crude oil.

Fig. 9 shows from the inception of the industry to the present time, the weighted average price of crude oil by years compared with an index of 30 basic commodities, both series having a common base of 100 for the five pre-war years, 1910-1914. This record indicates a general inclination for the price of crude oil to conform to the course of other basic commodities, the departures therefrom being temporary. There is a tendency for demand to be the controlling factor in the broader price movements, while supply dominates for the short-term. A glance at Fig. 9 reveals the character of the price response

FIGURE 9.—WEIGHTED AVERAGE PRICE OF CRUDE OIL IN THE UNITED STATES COMPARED WITH PRICE OF 30 BASIC COMMODITIES, BY YEARS, 1861-1938, EXPRESSED IN INDEX NUMBERS WITH A BASE OF 100 FOR THE PERIOD 1910-14.



¹⁰ Report on the Cost of Producing Crude Petroleum, Washington, 1935.

to the inflation periods of the Civil War and the World War; also the relatively high prices prevailing during the twenties. During the period of proration, 1927-1933, the price of crude oil has averaged \$1.04 per barrel, with a range in annual averages of 65 cents to \$1.30. There is a predisposition in many quarters to judge the success or failure of proration by the price resultant. This view overlooks the functional nature of prices. Even with proration affecting supply, price fluctuations should play an important role in maintaining equilibrium. It would be a mistake to expect proration to create a stable price under all circumstances; on the contrary, a flexible price should be invoked to maintain the effectiveness of proration.

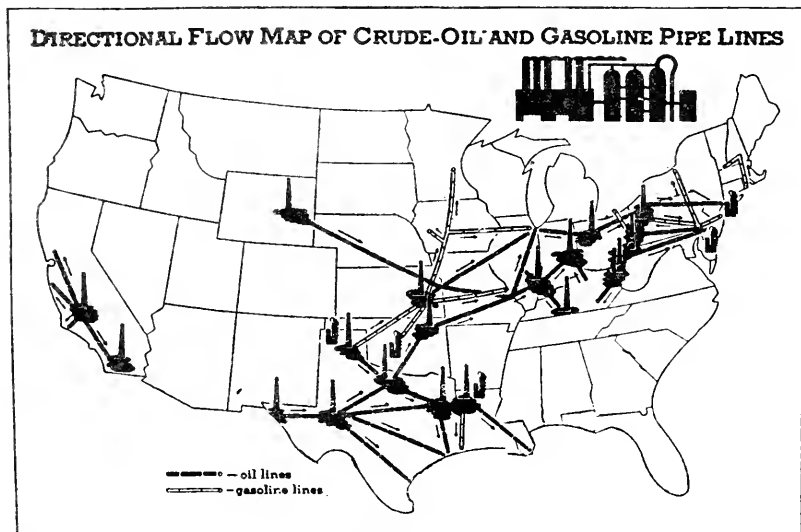
TRANSPORTATION

Crude oil is transported by means of special facilities created by the industry. The two principal types of conveyances used are the pipe line and the oil tanker. Only a small fraction of the crude oil produced is carried by the railroads because pipe lines and tankers offer superior efficiency and lower transportation costs.

For liquids available in sufficient volume with a concentrated market, the pipe line affords the most efficient form of overland transportation. While capital costs are substantial, rights of way are not expensive, the operation of the system is automatic to a high degree, movement is continuous, and there is no problem of two-way traffic or return movement of empty facilities. Because of these advantages and the technical proficiency of modern pumping systems, the average cost of pipe line transportation probably does not exceed four mills per ton-mile, which contrasts with an average cost of movement by rail of approximately eight mills per ton-mile. Thus no natural competition can persist between oil pipe lines and the railroads.

The oil pipe lines of the United States constitute a far-flung system connecting the oil fields with the principal consuming centers and water terminals. The aggregate length of lines is approximately 115,000 miles¹¹—almost one-half of the combined length of all our railroads. Oil pipe lines are located in twenty-four States, but as the equipment is largely below ground and only marked by an occasional pumping station, its magnitude and importance are not commonly realized. The system consists of trunk lines and what are known as gathering lines which connect with the flow tanks of individual oil wells. The pipe line, therefore, forms a link between the oil fields and refineries and the flow of oil is practically continuous from lease to plant. (See Fig. 10.)

FIGURE 10.—DIRECTIONAL FLOW MAP OF CRUDE OIL AND GASOLINE PIPE LINES IN THE UNITED STATES. FROM "PETROLEUM FACTS AND FIGURES, 1937."



¹¹ Of which 60,000 miles are trunk lines and 55,000 miles are gathering lines.

Pipe lines are by nature large-scale enterprises. The Interstate Commerce Commerce in its report on interstate pipe line operations for the year 1937 lists only 58 companies, which represent about 84 percent of the pipe line mileage of the country, the remainder being intra-state systems not subject to regulation by the Commission. The 58 companies represented a total investment of 890 million dollars (with accrued depreciation of 414 million); transported 948 million barrels of oil originating on the lines, or 1,288 million barrels including duplications; and employed 24,168 men with an annual payroll of 45 million dollars.

The interstate systems, as well as the lines operating within a single state, are for the most part subsidiaries of integrated oil companies. Of the 58 units listed in the Commission's 1937 report, only 14 are not affiliated with refining companies, and these independent lines represent only 10 percent of the total trunk-line mileage of all interstate lines. Pipe lines have almost invariably been constructed by refining interests, which looked upon them as an adjunct to the manufacturing enterprise necessary to insure a continuity of raw material, a partial offset to the variable and shifting nature of crude oil production; they have rarely been built by producing interests or by promoters not already engaged in the oil business.

The first oil pipe line was constructed in Pennsylvania about seventy years ago. As the industry developed in the Appalachian area, pipe lines were extended to connect the oil fields of that region with refineries established in a number of large cities in Ohio and Pennsylvania. In 1878 a trunk line was completed to the Atlantic Coast. With the westward migration of the industry into the Middle West and then into the Mid-Continent pipe line construction followed oil discoveries and by 1913 the system, as we know it today, was outlined, permitting the piping of oil from the western fields to the great refining centers of the Eastern Seaboard, the Gulf Coast, and the North Central States.

The development of the oil pipe line played an important role in determining the geographic pattern assumed by the refining division of the industry. The manufacturing plants were enabled to become established in populous centers, distant from the sources of the raw material; and new discoveries were quickly rendered available to them by new line construction, thus supporting the rapid refinery expansion requisite to the growth of automotive transportation. Though now practically a country-wide system of specialized transport, the pipe line originated as a plant facility, and few refining establishments have been constructed outside of the oil fields away from deepwater without their own pipe line connections. The economic union of the pipe line and the refinery is one of the oldest and most persistent attributes of the industry.

In its continuous pursuit of new sources of supply, the pipe line brings the market for crude oil to the oil fields. The pipe line companies as such do not buy oil, but serve as transport agencies for purchasing companies acting on behalf of affiliated refineries. It is the integrated nature of the typical pipe line, respect, crude petroleum differs from most other commodities which must seek their exchange in central markets. Crude oil does not come to market; the market goes to the crude oil. Perhaps this is the fundamental reason why there has never developed a successful central exchange for this commodity.

With the evolution of proration, the presence of refinery-affiliated pipe lines and a posted market at the well greatly facilitated the practical operation of the mechanism of control. Experience has shown that in areas resistant to the effective administration of proration, circumvention of the allowables has usually been brought about by the development of new channels of movement via rail and trucks or through local pipe lines constructed for opportunistic purposes. There can be little question but that the integrated nature of the industry has contributed to the progress made in scheduling production and adds to the means for equilibrating supply and demand.

Pipe lines function as common carriers in cases where demand for this service exists, although the bulk of the oil is still moved for the account of affiliated refineries. In recent years there has been a tendency for two or more companies to unite in the construction of joint facilities. Pipe lines charge specified rates for the movement of oil, which are usually less than half the railroad freight rates, and these tariffs for interstate movements are under the supervision of therefore, that is responsible for the field location of the market. In this the Interstate Commerce Commission. Pipe line rates do not carry the economic significance usually ascribed to them, for they are usually merely bookkeeping concepts for integrated companies; but a general downward tendency in rates has been in evidence in recent years.

The technique of pipe line transportation has been successfully applied to the volatile product, gasoline, but the volume moved through pipe lines is only about 10 per cent of the quantity of crude oil transported in this way, and around 15 per cent of the total motor fuel produced. The aggregate length of the gasoline pipe lines of the country is around 8,000 miles. While this system has not attained its full development, the gasoline pipe line is economically applicable to special situations where transportation by water is impracticable. The pipe line movement of gasoline is feasible where there is a supply in excess of nearby requirements and concentrated markets exist into which this supply can be moved. The longest lines have been developed in the Central States as a relief to the large manufacturing capacity plants in the Mid-Continent area, where a reduction in transportation costs was imperative. A declining price level and a rigid system of comparatively high railroad charges supplied the impetus.

Similarly, the oil industry has provided its own facilities for the movement of oil by water. The industry maintains a fleet of 750 tank ships for use on the ocean, the Great Lakes, the Mississippi River, and on canals and other waterways, representing an investment of 530 million dollars.¹² Over half of the traffic in refined products and nearly one-third of the crude oil traffic move on coastwise, intercoastal, and inland waterways. In 1938 approximately 75 per cent of the domestic crude oil was delivered to refineries by pipe line, 22 per cent by boats, and the remaining 3 per cent by tank car and truck. The first oil-carrying ship was a sailing vessel with capacity of 7,000 barrels of crude in casks. Steel ships, carrying large tanks for the oil, were the next development and they were driven by steam. Then came the modern steel tanker, subdivided into compartments, and driven by the diesel engine. Tankers now range in carrying capacity up to 165,000 barrels; and can dock, unload and start on a return voyage in 24 hours. Because of automatic loading and bulk, the oil tanker represents the ultimate in transportation efficiency, exceeding that of the pipe line. Comparative costs per ton-mile are approximately 8.3 mills by rail, 3.2 mills by pipe line, and 1.25 mills by tank vessel.¹³ In consequence the tanker competes with the pipe line and diverts as much traffic as the geographic pattern permits. The high concentration of refining capacity in the Gulf and Atlantic coastal regions has been caused by the availability and cheapness of water transport.

From the viewpoint of industrial equilibrium, the function of transportation in the petroleum industry plays a secondary role. As a service element, it does not create supply, but merely transmits it; yet it provides the means for holding the movement in some degree within established trade channels. In its integrated aspects, it helps administer the application of ratable takings in the oil fields, but its conductivity is high in respect to transferring the pressure of crude oil potentials to the markets for products.

REFINING

The refining of crude petroleum utilizes the application of heat, pressure, and catalytic principles for the separation of the raw material into its component parts and for the breakdown and recombination of the molecular structures of the derivatives. The procedure therefore involves a combination of physics, chemistry, and engineering and the advances in the science during the past twenty years have been radical. From an economic viewpoint, refining engages the principles of mechanization, by-product utilization, and multiple production.

The size of the refining division of the petroleum industry is determined by the demand for its principal products and the technology available for meeting this demand. On January 1, 1938, the rated refinery capacity of the United States was 4,634,171 barrels per day, through which 3,269,419 barrels per day were run in the peak month of the year. These figures suggest a reserve capacity of 1,364,752 barrels per day, or 29.4 per cent; but the excess capacity is largely composed of inefficient, high-cost, obsolete units, little of which could be economically utilized to produce products of the quality in demand. Also the rated capacity of many plants tends to be larger than the average working capacity. Effective refining facilities, therefore, are not substantially in excess of requirements in terms of current and prospective demands.

On January 1, 1938, there were 561 refining establishments in the United States, of which 431, representing 77 per cent of the total capacity, were operating, 120

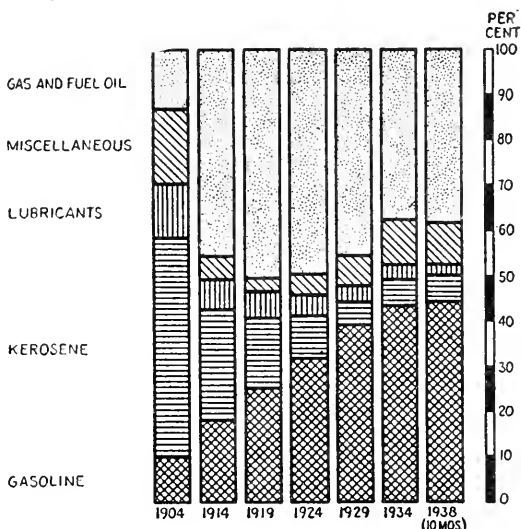
¹² National Petroleum News, February 5, 1936, page 387.

¹³ Lisle, Tanker Technique, 1700-1936, World Tankship Publications, London, 1936, p. 9.

were idle, and 10 were under construction. Of the operating plants, 24.9 per cent of their total capacity was represented by units with capacity of 100,000 barrels per day or over; 12.9 per cent, by units with capacity of 50,000-99,000 barrels daily; 15.3 per cent, by units of 25,000-49,000 barrels daily; 25.6 per cent, by units of 10,000-24,000 barrels daily; and 21.3 per cent, by units below 10,000 barrels daily capacity. Thus, 104 plants represented 78.7 per cent of the operating capacity of the country, which 327 plants accounted for 21.3 per cent. While small refineries can be constructed with the same physical efficiency as large ones, the natural economic advantage of large-scale operations in areas tributary to concentrated markets has tended to develop refining on a mass-production basis.

The process of refining is highly automatic with a large ratio of capital to labor. The investment in the refining division has been estimated at 3.7 billion dollars in 1937; for each employee engaged in this division, 12,330 barrels of crude oil were processed and around \$38,700 of capital were engaged. The relative yields of the principal products from a barrel of crude oil, together with the shifts since 1904, are shown in Fig. 11.

FIGURE 11.—PERCENTAGE YIELDS OF PRINCIPAL PRODUCTS FROM CRUDE OIL, BY PERIODS, 1904-38, SHOWING TREND OF CHANGES IN RELATIVE RECOVERIES OF GASOLINE AND OTHER PRODUCTS.



Petroleum refineries are located in 32 States, but about 90 per cent of the total refining capacity of the country is concentrated in 10 States with Texas in the lead with 29.5 per cent. The Seaboard area along the Atlantic and Gulf coasts accounts for 41.4 per cent of the country's total capacity; the Interior, for 38.0 per cent; and California, for 20.6 per cent. During the first ten months of 1938, the Seaboard sector produced 41.3 per cent of the Nation's output of gasoline; the Interior, 44.7 per cent; and California, 14.0 per cent. Thus about half of our gasoline supply is manufactured on deep-water, reflecting the importance of tanker transportation in determining the geographic location of the industry.¹⁴

The technical changes that have taken place in refining are numerous and complicated. Lack of space prevents analysis of all but three developments that

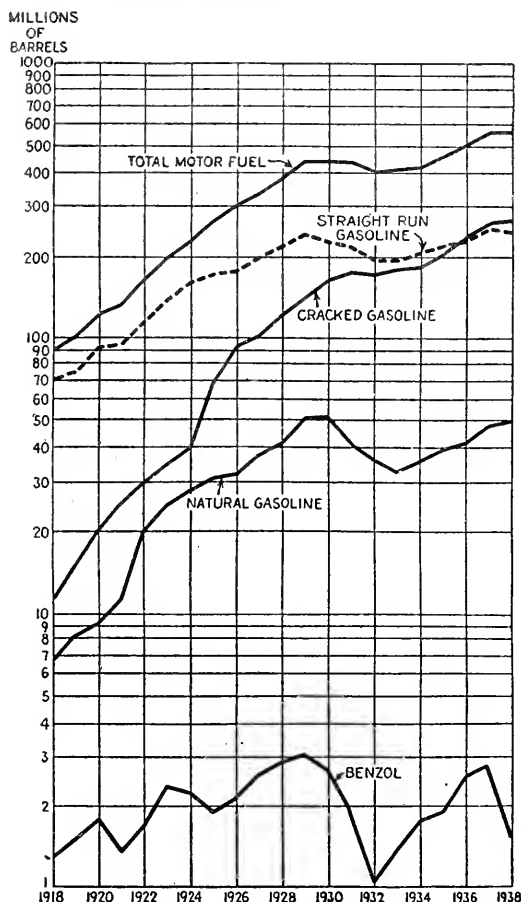
¹⁴According to Nelson (Petroleum Refinery Engineering, New York, 1936) direct cost of refining, not including sales, administration, depreciation, and taxes (estimated at around 10 cents per barrel), is as follows:

Operation	Cents per Bbl. of Crude
Topping	12-21
Topping and Cracking	26-39
Complete	25-52

have either exerted a deep impression upon the art or promise to do so as time goes on. The first of these, cracking, has revolutionized the quantity and quality of the recovery of gasoline from a barrel of crude and is still undergoing improvement; the second, polymerization, relatively new in its commercial application, brings into view as prospective motor fuel a range of gaseous hydrocarbons now utilized for less essential purposes; the third, hydrogenation, which still awaits the proper economic setting, permits great flexibility in manufacturing and renders available a range of raw material extending beyond the field of petroleum.

As its name implies, cracking breaks down the heavier molecules of fuel oil and distillates into gasolines of high anti-knock quality. In 1920, the output of cracked gasoline was only 15 million barrels as compared with 101 million barrels of gasoline derived from crude oil by ordinary processes of distillation. In 1938, the production of cracked gasoline had risen to 270 million barrels, exceeding in volume the 245 million barrels of the straight-run product. (See Fig. 12.) Cracking has enabled the recovery of gasoline from crude oil to

FIGURE 12.—PRODUCTION OF MOTOR FUEL IN THE UNITED STATES, BY YEARS, 1918-38, TOGETHER WITH RATE OF GROWTH OF COMPONENTS OF SUPPLY, SHOWING THE RISING IMPORTANCE OF CRACKED GASOLINE.



increase from 26 per cent in 1920 to 44 per cent in 1938 and still larger recoveries are possible as time goes on.

From an economic standpoint cracking converts a less wanted product into one of higher worth, and progress in its application has been determined by the course of price margins and developments in the technique. At present the art of cracking is evolving from a thermal to a catalytic procedure and it is probable that catalytic cracking processes will gradually supersede the established installations, again emphasizing the rapidity of technical obsolescence in the oil-refining industry. Catalytic cracking offers the advantages of lower processing costs, improved quality for gasoline, greater indifference to the quality of the raw material used, and improved flexibility of yields. In particular, it permits a larger cut of heating oils, thus supporting the dynamic growth in the demand for this product.

Polymerization has become important in its commercial application in the oil industry during the past few years and holds great promise for the future. The complete reverse of cracking, it utilizes as its raw material the hydrocarbons lighter than gasoline and combines them into larger molecules of the gasoline family, in so doing also creating high anti-knock quality. Similarly to cracking, the processes employ both thermal and catalytic principles. The gasoline present in natural gas has long been extracted in special compression, adsorption, and absorption plants, and is utilized as a blending component in the manufacture of motor fuel; the output of this by-product of natural gas has increased from 9 million barrels in 1920 to 50 million barrels in 1938. With the advent of polymerization, the chemical components of natural gas proper—first the heavier constituents, butane and propane, and eventually (no doubt) the lighter constituents—become raw materials for the synthetic production of gasoline, along with the gaseous products of refining, heretofore burned as fuel. Polymerization, therefore, brings to the motor fuel user a vastly augmented source of supply, only a small part of the potentialities of which has yet been realized. Installations of polymerization plants have been rapid in the past few years and already a sizeable addition to the motor fuel supply is coming from this source; and polymer gasoline may ultimately vie with cracked gasoline in volume.

While cracking has long enjoyed an increasing role in oil refining and polymerization is growing in importance, an additional process developed in Europe and technically perfected in this country—hydrogenation—is awaiting the stimulus of higher prices to find intensive development. The process provides great flexibility in the conversion of crude oil into the products most in demand and also enables carbon compounds (coal) to be changed into hydrocarbons (oil). While costs are still too high for general application in the presence of existing low prices for gasoline, an upward shift in the price level would bring this new technique into action. In connection with cracking and polymerization, hydrogenation will ultimately be able commercially, as is now the case technically, to convert crude oil completely into motor fuel.

Progress in refining technique has been so significant that it may fairly be said that the technology is in hand to promise an ample supply of motor fuel for an indefinite period.

A basic economic problem faced by any manufacturing activity is the maintenance of equilibrium between supply and demand. And this problem presents specialized features in the case of an enterprise involving the production of a range of products from a single raw material. Not only must the supply of the main product be kept in balance with its demand, but sufficient flexibility in processing and pricing must be developed so that the joint products will be carried off in trade in the proportions in which they are manufactured.¹⁰ In the case of petroleum, gasoline constitutes the main product, and kerosene, distillate, fuel oil, and lubricating oils are the principal joint products. (See again Fig. 11.) With the demand for each of these products influenced by different economic factors, it is apparent that the refining industry faces the continuing necessity of avoiding shortages or overages of one product or the other. The means whereby these maladjustments are minimized and a condition of equilibrium approximated involve the mechanism of price, which operates to regulate

¹⁰ See Norman D. Fitz Gerald, *Economic Equilibrium in Petroleum Refining Operations*, Amer. Inst. Min. and Met. Eng., New York, February, 1939.

demand and to influence changes in the yields of the several products. The necessity for flexible prices in a joint-product industry is imperative; and the advent of new processes making for greater variability in yields is a stabilizing factor.

TABLE IV.—*Refiners' margin on a typical barrel of mid-continent crude oil, by years, 1928 to 1938*¹

Year	Price of Crude	Realization on Products	Refiners' Margin	Year	Price of Crude	Realization on Products	Refiners' Margin
	<i>Dollars per Barrel</i>	<i>Dollars per Barrel</i>	<i>Dollars per Barrel</i>		<i>Dollars per Barrel</i>	<i>Dollars per Barrel</i>	<i>Dollars per Barrel</i>
1928.....	1.32	1.97	0.65	1934.....	1.00	1.37	0.37
1929.....	1.36	1.90	0.54	1935.....	1.00	1.54	0.54
1930.....	1.23	1.58	0.35	1936.....	1.10	1.68	0.58
1931.....	0.63	1.01	0.38	1937.....	1.21	1.76	0.55
1932.....	0.87	1.30	0.43	1938 ²	1.18	1.58	0.40
1933.....	0.62	1.09	0.47				

¹ Data from National Petroleum News.

² Preliminary figures.

The refining industry faces an additional problem in balancing its overall operations with the requirements of the market; for it usually tends to gather too much momentum in upswings in the business cycle. If refinery operations could be sensitized to business conditions so that the cyclical swings would coincide with those in general business, instead of displaying a consistent lag,¹⁵ an important gain in stability would be made. The profitability of refining is strongly cyclical, as indicated in Table IV, which shows the refiner's margin on a typical barrel of Mid-Continent crude oil, by years, from 1928 to 1938. It may be observed from this exhibit that from 1930 through 1934 the refiner's margin was prevailing below his probable costs; an improved relationship obtained in the period 1935–1937, but in late 1937 and in 1938 a condition of low margins again appeared. The disparity between crude oil prices and the realization by refiners, which has repeatedly developed, is accentuated under the system of regulated crude oil production. Proration tends to result in greater stability in crude oil prices than in products' prices, for the reason that the supply of crude oil is not always held in adequate balance with the estimates of consumer demand for products, thus permitting overrefining to take place. This maladjustment could be minimized if refiners instituted methods for closer analysis of the business cycle and the proration authorities followed more faithfully the advisory quotas supplied by the Bureau of Mines, particularly in periods of upswings in demand when inflated operating schedules are likely to develop.

Distribution¹⁶

The marketing system of the petroleum industry is the product of economic forces operating in an environment of severe competition during a period of rapid expansion. Its development was influenced not only by the urge of a mounting supply to find the points of contact with a rising demand, but also by the desires of a widening circle of individuals to avail themselves of a new means of livelihood. The resultant is a physically efficient, highly convenient, but overdeveloped and hence high-cost mechanism. The form that the system has assumed is well adapted to its function, but its proliferation has gone to extreme and uneconomic lengths. Yet to correct this defect and rationalize the extent of the facilities would create a social problem that should be weighed in all considerations of this subject. Undoubtedly gasoline could be adequately distributed without calling for the services of all the individuals now engaged in this activity. But this is true of distribution in general and is not peculiar to the oil business. Hence it is perhaps not proper to apply *rigid* economic criteria to a condition that not only renders a service to the consumer but contributes to the support of a vast number of individuals untrained for other pursuits.

¹⁵ See Norman D. Fitz Gerald, *Economic Equilibrium in Petroleum Refining Operations*, Amer. Inst. Min. and Met. Eng., New York, February, 1939.

¹⁶ For purposes of brevity and simplification, the discussion under this section will be limited to the distribution of gasoline.

The physical plant engaged in the distribution of gasoline is spread over the entire country and consists of specialized transportation facilities, intermediate warehouses, and retail establishments. The last named are either service stations devoted to the sale of this commodity and related accessories, or establishments of various sorts that handle gasoline as a side line. The technical aspects of the plant in its entirety are highly proficient; the evolution in the form of equipment has been progressive, as witness the modern tank-truck and the electrically driven, automatic, measuring and computing pump; but the visual or architectural characteristics of most retailing units reflect immaturity and leave room for improvement.

Originating at the refinery, gasoline first moves by tanker, barge, pipe line, or railroad tank-car to terminals or bulk stations. The oil tanker is used interchangeably for either crude oil, gasoline, fuel oil, or kerosene. The railroad tank-car is a specialized form of freight car; barges are employed on rivers, harbors, and canals. The terminal is a large depot, usually at seaboard, for receiving the product unloaded from tankers. Other terminals, seldom as large as those along the coast, are located at inland points; and these are usually serviced by pipe lines. The bulk plants are wayside storage stations, comprising a few tanks, a loading rack, and often a warehouse building, located within trucking distance of the retail outlets. The number of terminals and bulk plants in the country is about 20,000, having a value of \$348,000,000, or \$17,400 on the average.¹⁷ From the bulk plant gasoline is transported by tank-trucks to service stations, other retail outlets, and large commercial consumers. In 1935 the U. S. Bureau of Census reported 197,568 service stations in the country. It has also been estimated that there are in addition some 200,000 business places that carry gasoline and oil as a side line.¹⁸ The net book value of company-owned service stations was reported in 1934 at \$378,000,000, or an average of \$15,448 per station.^{17 19}

A simplified flow-sheet of gasoline from refinery to consumer shows four channels of distribution: the company-owned service station, the dealer who operates his own service station or retail outlet, the large consumer such as trucking or bus companies, and the jobber. Of the total domestic consumption of gasoline, the distribution formerly took place approximately as follows: company-owned service stations, 20 per cent; resale dealers, 40 per cent; large consumers, 15 per cent; and jobbers, 25 per cent. But the recent practice of integrated companies in leasing their stations to operators has reduced the proportion flowing through company chains and raised the dealers' percentage to over 50 per cent. It is thus seen that the dealer, who is in the nature of a commission agent selling the branded product of the supplying company, is the dominant element in the marketing business. The jobber is a middleman, buying the product directly from the refiner and then distributing it through his own bulk stations to chains of service stations, dealers, or large consumers, thus more or less duplicating the channels employed by the refiner in his own distribution.

Practically all refining companies sell to jobbers their surplus above the requirements of their own service stations, dealers, and large-consumer outlets. Under the classification of jobbers may also be included the so-called trackside stations, which are usually cut-price stations located at the juncture of a convenient street and a railroad siding and equipped with bulk storage for receiving tank-car deliveries; and the oil co-operatives which buy in bulk and resell through their own retail outlets to members who receive, in effect, a discount below the prevailing retail market, usually in the form of a "dividend."

The gasoline distributing system had its main development during a period of vigorous expansion in the petroleum industry and under the influence of an exceptional price era marked by credit inflation. It is important to note that from 1915 to 1938 the domestic consumption of gasoline increased from 40 million barrels to 520 million barrels, or thirteen-fold; and the number of

¹⁷ Petroleum Administrative Board, Report to the Subcommittee of the Committee on Interstate & Foreign Commerce, Washington, March 20, 1935, Table 5.

¹⁸ E. B. Reiser, *Oil Marketing a Typically American Enterprise*, National Petroleum News, February 5, 1936, p. 238.

¹⁹ According to Petrol. Admin. Board (Final report of the marketing division, Washington, June, 1936, p. 155), the economic cost of retailing motor fuel in Allen County, Ind., through filling stations averaged 4.61 cents per gallon with a range for group of stations of 3.35 cents to 6.88 cents according to the volume of gasoline sales.

motor vehicles registered, from 2.4 million to 29.8 million, an increase of more than twelve-fold. Prior to the rise of automotive transportation, the oil industry was primarily an illuminating oil industry and it produced a system of tankwagon delivery for this commodity. This method of distribution was ready at hand when gasoline came upon the scene. So long as the volume of gasoline was small, its sale was conducted through the same channels as kerosene. Garages, however, were soon established and provided new outlets for gasoline; the garage was the first type of dealer.

As the use of the automobile expanded, the oil companies seized the opportunity to set up retail establishments in the form of service stations, but at the same time continued through tankwagon delivery to serve the garages and other types of dealers who were taking on gasoline distribution as adjuncts to their business. Later still, as the industry grew and integration proceeded, the supply of crude oil began to build up economic pressure which came more and more to seek relief in retail outlets. The oil companies did not command sufficient capital to build service stations rapidly enough; so they vied with one another to gain more and more new dealers. The dealer soon became a prize to be eagerly sought; the competition between oil companies for the dealer became increasingly severe and soon the companies were offering inducements in the form of free equipment and granting margins of increasing spread under the retail price. In this manner a vast array of dealer outlets was established in competition with the companies' own stations. But even so the refining companies failed to expand their service station and dealer outlets fast enough to carry off the mounting supply, so the surplus was thrown on the wholesale market in tank-car lots.

An opportunity was thus created for the entrance of the jobber, who purchased the marginal surplus and disposed of it in direct competition with the dealer and the company-owned service station. The maintenance of wide margins during this period of expansion, a necessity in some degree to insure the growth but nevertheless carried too far, in effect subsidized both the dealers and the jobbers and facilitated the overdevelopment of the marketing structure with its multiple channels of distribution.

Thus the overexpansion of retail outlets was the resultant of the rapid growth of a new industry during a period of credit inflation. The primary causes lying back of this development were the mounting pressure of the crude oil supply under the impetus of the rule of capture, and the growth of the market in all parts of the country giving opportunity to individuals to set up as proprietors of a new and expanding business. The increasing integration in the oil business and the nature of the retail price structure facilitated the developments that took place. Thus the number of outlets grew even more rapidly than the volume of business, with the result that the gallonage per unit declined, thereby raising unit costs, at the same time that the increasing competition brought about lowered selling prices. Rising costs and declining prices created the so-called marketing problem, which the Petroleum Code sought in vain to solve by seeking to bring about wider margins in order to re-establish a profit in this division of the business.

The profitability of the marketing system in oil depends upon the width of the price margins—the differentials existing between wholesale, intermediate, and retail prices. Of these differentials the wholesaler's margin between the refiner and the dealer and the retailer's margin between the dealer and the consumer are the most important. The size of these margins is determined primarily by the interplay of competitive forces operating within the marketing zone. Wholesale and retail margins were quite large in the early twenties, as was necessary to induce the extensive development of the marketing system to meet the rapidly rising demand. The momentum of expansion carried the construction of facilities beyond economic limits and in the late twenties margins began to narrow, contracting sharply in the depression of 1929-1932 and undergoing a modest increase in the subsequent recovery. There are too many units engaged in marketing to thrive except under relatively large margins, and yet the overcrowding gives rise to competitive forces that operate in the opposite direction. It is not surprising, therefore, that political pressure has been exerted to expand margins through legislation in order to sustain the high-cost units.

Jobber groups, under the influence of this complex situation, have made attacks upon the proration mechanism as the imputed source of their troubles. Because

uncontrolled production and mounting demand characterized the era when wide margins were established, it is perhaps natural to look to restricted production as the cause of unsatisfactory margins. This conclusion, however, is in error, for overcrowding in this field is the result of pre-existing wide margins and this congestion now renders wider margins unattainable in the presence of competition, with the present status of production having little to do with the underlying economic forces at work. This condition, too, has been aggravated by structural changes in the marketing mechanism brought about by the Petroleum Code and subsequent legal and legislative actions. It is also probable that the virtual dissociation of the retail function from refining, according to the so-called Iowa Plan, under the compulsion of regulations discouraging to chain store operations, has further aggravated the marketing situation in a manner particularly disruptive of the function of the middleman. The atomistic kind of competition thus induced has, in turn, set up the incentives for certain State price-fixing laws which are now tending to undo some of the effects of previously enacted chain store restrictions.

The distributing system of the petroleum industry is the focus of incessant dissension and the source of endless proposals for regulation and change. The overcrowded nature of this field makes for a severity of competition that keeps the profit average at a level unsatisfactory to the efficient and unremunerative to all operators in the higher cost brackets. There can be no fundamental resolution of this difficulty except through a long period of narrow margins that will retard further expansion and permit the volume of sales per unit to increase; and yet there is no field in which more legislative panaceas are proposed, all running to the theme of protection to this interest or that, or to the regulation of competitors. There is considerable evidence to suggest that the forces making for continued overexpansion in this sector have passed their maximum and a reversal is under way. The change is slow and complex, but unless the situation is frozen by too much legislation—and such action will doubtless merely prolong the adjustment—an irregular movement in the direction of improved equilibrium seems probable. The inevitable trend toward narrower margins is partly compensated for by increasing demand. The process of adjustment, therefore, will probably be gradual and with sufficient growth in demand may be largely negative in its incidence—an inhibition of new expansion rather than a rapid contraction of existing facilities.

There is too much disposition to view the marketing "problem" as an urgent matter calling for immediate action. This field of operation does not rise to the dignity of an important industrial issue, except in the eyes of those involved in its low profitability; but it can become a social problem if changes are too drastic or are condensed into too short a period of time. As a practical matter, the maintenance of equilibrium in the other departments of the oil business, coupled with marketing margins responsive to competitive forces, is all that is needed to maintain the standards of service and to lower, but not too rapidly, the costs of distribution, with minimum disturbance to all interests concerned.

ASPECTS AS A WHOLE

We have thus far dealt with the American petroleum industry as a functioning unit in the general economy. In order to round out the treatment, it is now necessary to touch on the economic frontiers of the industry, where its operations come into contact with other interests; foreign countries, the consumer, the State, the worker, and the investor.

The American petroleum industry has a mutuality of interest with foreign countries in two particulars: It has supplied considerable capital for the development of the oil business abroad, and it imports and exports crude oil and products in substantial volume. In its foreign trade in oil, the United States has long had a favorable balance of trade on a dollar basis. In 1925, the net exports (exports minus imports) amounted to 390 million dollars; in 1937, to 332 million not including re-exports. Imports are now confined virtually to crude oil and fuel oil, while exports also include gasoline, kerosene, lubricating oils, and other products. The trend of the volume of imports and exports for recent years is shown in Table I. In 1938 the United States imported 54.1 million barrels of crude oil and products, and exported 193.9 million

barrels. The flow-channels for export movements of petroleum products from the United States are shown in Fig. 13.

Two interesting changes have taken place in the composition of our foreign trade in petroleum. In the first place, imports of crude oil have declined coincidentally with an increase in exports of crude oil. For example, in 1929 we imported 78.9 million barrels of crude oil and exported 26.4 million barrels; in 1938, the imports had dropped to 26.4 million barrels, while the exports had risen to 77.3 million. This change has been brought about by a tariff on crude oil of 21 cents per barrel and by voluntary restrictions on the volume admitted, coupled with a rapid growth in foreign consumption.

In the second place, our imports of gasoline have declined from 8.8 million barrels in 1929 to nothing, under the imposition of a duty of $2\frac{1}{2}$ cents per gallon, but exports of gasoline have likewise fallen from 62.1 million barrels in 1929 to 50.2 million barrels in 1938. In short, the imposition of trade barriers in the form of import duties has resulted in the stimulation of refining operations abroad, a loss of export business in refined products, and a reversal of our position in respect to crude oil from a net importer to a net exporter.

Crude oil can be produced in Venezuela, the largest source of our imports, more cheaply than in the United States because of unit operation, hence a protective tariff tends to subsidize the more competitive practices in the oil fields of the United States. On the other hand, equity requires that if the American industry operates under a system of proration, the volume of imports shall likewise be restricted to a fair ratio to domestic production. Under the Petroleum Code, imports of oil were limited to the average rate obtaining for the second half of 1932, or 98,000 barrels daily. Imports for domestic consumption are still running below this rate as a result of a voluntary policy on the part of the importing companies, but there has developed an import movement in bond for purposes of re-export.

The trend and relationships of our import and export trade in oil are shown graphically in Fig. 14. Our foreign trade policy in respect to oil has been opportunistic rather than scientific, but the problems involved have not been simple. The needs of the situation require a balanced policy having regard to the principles of conservation, equity under proration, industrial equilibrium, and maximum interchange of goods in world trade.

The consumer of petroleum products is concerned with service, quality, and price. The elements of service and convenience have perhaps been overdone, but this is a less serious flaw than default in these respects. The quality of petroleum products has displayed the progressive improvement characteristic of all commodities whose technology has received the stimulus of keen competition. The gasoline available to the motorist has been increasing in utility from an engineering standpoint for the past fifteen years. This improvement has been in part due to the development of better gasoline by refiners and, in part, to improvements in engine design by automotive manufacturers. The increasing efficiency of automobile engines is largely the result of raising the compression ratio, which makes necessary the use of a fuel that has a higher octane rating, or a lower tendency to knock or detonate in the motor. The percentage of high-octane components in our total motor fuel supply has increased from 34.6 to 1925 to 56.8 in 1938, while the average octane rating has improved from 60 in 1931 to 71 in 1938. (See Fig. 15.)

The average retail price of gasoline (excluding sales tax) in 50 representative cities in the United States has declined in the past fifteen years from 21.06 cents per gallon in 1923 to 14.07 cents per gallon in 1938. During the same period, and for the same cities, the average sales tax, Federal and State, has increased from 0.91 cents per gallon in 1923 to 5.44 cents per gallon in 1938. Expressed in dollars per annum per motor vehicle, the sales tax cost to the motor-vehicle user has increased from \$4.37 in 1923 to about \$35.75 in 1938.

Recalculating the retail price of gasoline in 50 representative cities (excluding sales tax) in the form of index numbers with 1926 taken as a base of 100, and comparing the results with the Bureau of Labor Statistics Price Index of 813 Commodities at Wholesale, which has a like base, we find that in 1938 the retail price of gasoline averaged 67.1 per cent of the 1926 level, whereas the index of 813 commodities stood at 78.6 per cent of the 1926 level. Furthermore, taking the two indexes at 100 for 1932, the year of lowest commodity prices during the great depression of the early thirties, we find that gasoline in 1938 averaged 106, whereas 813 commodities averaged 121; in other words, on the rise in commodity prices between 1932 and 1938, gasoline increased only 6 per cent, while 813 commodities increased 21 per cent. This more temperate advance on the side of gasoline is particularly significant in view of its coinci-

FIGURE 13.—FLOW SHEET FOR EXPORT MOVEMENT OF PETROLEUM PRODUCTS FROM THE UNITED STATES, SHOWING RELATIVE SIZE OF TRADE CHANNELS. FROM "PETROLEUM FACTS AND FIGURES, 1937."

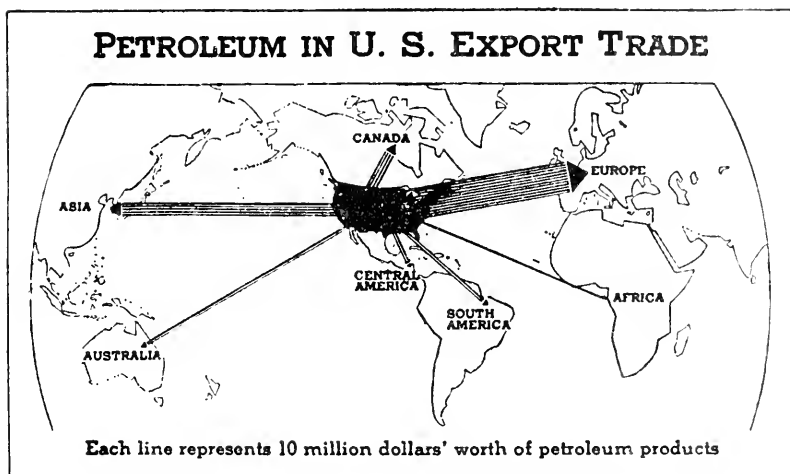
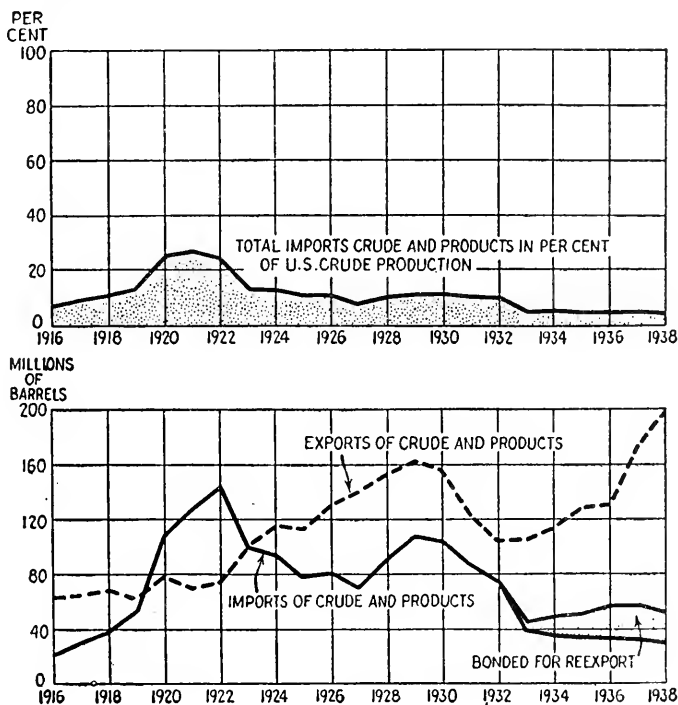


FIGURE 14.—TREND OF RELATION OF TOTAL IMPORTS OF CRUDE AND PRODUCTS TO UNITED STATES PRODUCTION OF CRUDE OIL, BY YEARS, 1916-38, AND COMPARISON OF IMPORTS AND EXPORTS OF CRUDE AND PRODUCTS FOR SAME PERIOD.



dence with a period of vigorous application of proration of crude oil production. Reference to Table V will show the various price comparisons by years from 1923 to 1938, and the relationship of gasoline to the consumer in general is reflected in Fig. 15.

TABLE V.—*Actual and relative average retail price of Gasoline in 50 representative cities, by years, 1923 to 1937, together with comparative data*

Years	Average Retail Price in 50 Representative Cities (Excluding Tax) ¹		Average Annual Sales Tax in Same 50 Representative Cities ²		Price Index of 813 Commodities at Wholesale (1926=100) ³	Purchasing Power of 813 Commodities Over Gasoline (1926=100) ⁴
	¢ per Gal.	Index Nos. (1926=100)	¢ per Gal.	\$ per Motor Vehicle ¹		
1923.....	21.06	100.4	0.91	4.37	100.6	100.2
1924.....	19.47	92.8	1.48	8.22	98.1	105.7
1925.....	20.09	95.8	2.11	9.51	103.5	108.0
1926.....	20.97	100.0	2.41	11.95	100.0	100.0
1927.....	19.29	87.2	2.80	13.48	95.4	109.4
1928.....	17.90	85.4	3.04	14.39	96.7	113.2
1929.....	17.92	85.5	3.50	17.71	95.3	111.5
1930.....	16.17	77.1	3.78	21.02	86.4	112.1
1931.....	13.00	62.0	4.00	23.84	73.0	117.7
1932.....	13.30	63.4	4.63	27.36	64.8	102.2
1933.....	12.41	59.2	5.42	32.36	65.9	111.3
1934.....	13.64	65.0	5.20	32.24	74.9	115.2
1935.....	13.55	64.6	5.29	33.01	80.0	123.8
1936.....	14.10	67.2	5.35	34.29	80.8	120.2
1937.....	14.58	69.5	5.40	35.37	86.3	124.2
1938 ⁵	14.07	67.1	5.44	35.75	78.6	117.3

¹ American Petroleum Industries Committee, Taxation Bulletin, Vol. III, No. 4, June, 1938, p. 35.

² American Petroleum Industries Committee, Taxation Bulletin, Vol. II, No. 12, February, 1938, p. 143.

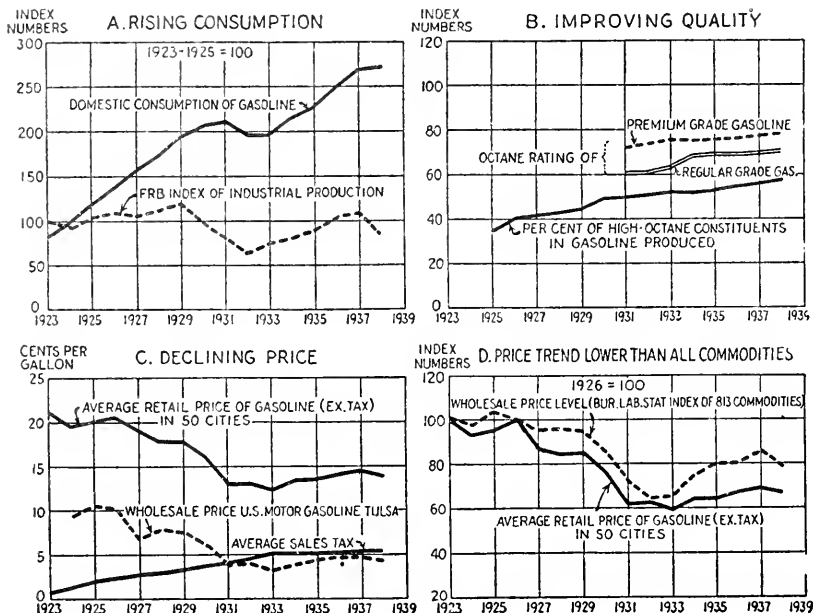
³ United States Bureau of Labor Statistics, Survey of Current Business.

⁴ Column 5 divided by Column 2.

⁵ Partly estimated.

FIGURE 15.—RELATION OF GASOLINE TO THE CONSUMER, BY YEARS, 1923–38, SHOWING: (A) RISING CONSUMPTION; (B) IMPROVING QUALITY; (C) DECLINING PRICE; AND (D) PRICE TREND LOWER THAN GENERAL PRICE LEVEL.

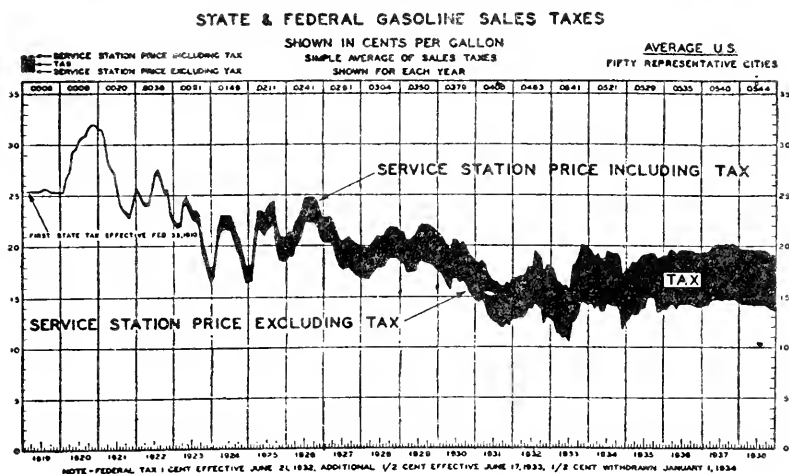
GASOLINE AND THE CONSUMER



The existing relationship of the petroleum industry to the State is one of some measure of mutual cooperation and helpfulness. The State has undertaken to assist the industry in its efforts to bring about conservation with its attendant stabilization, and the instrumentality of proration has received the support of most of the oil-producing States through the enactment and enforcement of conservation laws; the Interstate Oil Compact has developed as a co-ordination agency; and the Federal Government has contributed its support of such measures by the enactment of the Connally "Hot Oil" Act, the provision of advisory production quotas, and a general attitude favorable to a temperate program of imports. The industry has been a heavy contributor of taxes and indeed has proven to be a fertile field for the incidence of taxation, which has been carried to extreme lengths and complexity in this business.

The American Petroleum Industries Committee estimates²⁰ that the total amount of taxes collected from the petroleum industry, its products and customers, in 1938 amounted to approximately \$1,277,680,972. Reduced to a per-barrel basis, the aggregate represents \$1.05 per barrel of crude oil produced, against a weighted average price of \$1.18 a barrel. About three-quarters of the total represented State and local levies, while one-quarter was paid into the Federal treasury. Seven hundred and fifty-eight million dollars, or about 59

FIGURE 16.—TREND OF AVERAGE RETAIL PRICE OF GASOLINE IN 50 REPRESENTATIVE CITIES IN THE UNITED STATES, BY MONTHS, 1919-38, SHOWING INCIDENCE OF GASOLINE SALES TAX. COURTESY OF THE TEXAS COMPANY.



per cent of the total, represent State gasoline taxes, and the relation of this item to the retail price of gasoline is shown in Figs. 15 and 16. Gasoline taxes are approaching the point of diminishing returns and there is some indication of a cessation in their growth.

The relationship of the industry to the problems of labor have, on the whole, been marked by a considerable degree of mutually satisfactory attainment. In the producing, refining, and transportation divisions of the business, the personnel is predominantly of a specialized and skilled type, located largely in the oil fields and refining centers, and constituting special communities of interest. The industry has provided good living conditions on the industrial frontier in a pioneering environment, and the average oil camp is a striking example of convenience and even comfort in the midst, frequently, of harsh geographic surroundings. In the field of distribution, the nature of employment relationships has been in the direction of the growth of an independent business for thousands of individuals who have thus found a means of livelihood, or some additions to their incomes.

The data available on the personnel, wages, and investment per worker in the various departments of the oil industry are not in strictly comparable form,

²⁰ American Petroleum Industries Committee, Tax Economics Bulletin, Vol. 3, No. 11, Fth, 1939.

but there is brought together in Table VI a series of indications that present the situation with reasonable accuracy for 1937. It may be observed that there is a sharp divergence between the marketing division, on the one hand, and the production, pipe line and refinery divisions, on the other. The former has an investment of \$6,000 per worker and an annual wage payment of \$1,055 per worker; whereas the latter has an investment of \$43,500 per worker and an annual wage payment of \$1,718 per worker. This comparison illustrates the tendency of wages to conform to the amount of capital utilized and to be greater in the highly mechanized and specialized divisions than in the service sector.

TABLE VI.—Comparative data on employment and investment in the petroleum industry in 1937

Division	Number of Employees ¹	Total		Per Worker	
		Payroll ¹	Investment ²	Annual Wages ¹	Investment ²
		<i>Millions</i>	<i>Millions</i>		
Production.....	136,788	\$232	\$6,493	\$1,693	\$47,500
Pipe Line.....	27,220	50	1,104	1,851	40,600
Refining ³	96,002	165	3,716	1,715	38,700
Marketing.....	529,530	559	3,210	1,055	6,000
Total.....	789,540	\$1,006	\$14,525	\$1,273	\$18,400

¹ American Petroleum Industries Committee Taxation Bulletin, Vol. III, No. 8, Nov. 28, 1938 p. 2706-71.

² Estimated in part by the author.

³ The United States Census Bureau, in a preliminary report for 1937, gives 83,183 wage-earners in oil refining, with a payroll of \$140,414,750, or \$1,688 per employee.

The average weekly earnings, average hours worked per week, and average hourly earnings are shown monthly in the Monthly Labor Review of the U. S. Department of Labor for the important industries and for all manufacturing industries combined. The findings for the producing and refining divisions of the oil industry are shown for the month of December, 1938, in Table VII, where it may be observed that the performance in the oil industry is far above average.

The investor in the American petroleum industry in recent years has received a relatively modest return upon his investment as reflected in the form of earnings and dividends. According to data supplied by Standard Statistics Company, Inc., for the period, 1927-1937, the combined earnings of 25 oil companies represented an average annual return of 5.2 per cent upon the invested capital. For a longer period, 1922-1937, the aggregate cash dividends paid by 21 oil companies averaged about 4 per cent per year on the stockholders' share in the invested capital, compared with more than 5 per cent for 135 industrial corporations.

TABLE VII.—Comparative wage data for the Petroleum Industry for Dec., 1938
(United States Department of Labor)

	Average Weekly Earnings	Average Hours Worked per Week	Average Hourly Earnings
	<i>Dollars</i>		<i>Cents</i>
Crude Petroleum Production.....	33.41	39.0	86.3
Petroleum Refining.....	35.30	36.4	97.4
All Manufacturing Industries.....	24.24	37.1	64.8

The total capital invested in the American petroleum industry is probably close to 15 billion dollars, having approximately doubled in the past 16 years. The gross investment for a period of years has been estimated by the American Petroleum Institute as shown in Table VIII.

TABLE VIII.—*Trend of gross investment in properties, plant and equipment of the American Petroleum Industry, by years, 1921 to 1937*¹

(DATA FROM AMERICAN PETROLEUM INDUSTRIES COMMITTEE)

Year	Million Dollars	Year	Million Dollars
1921	6,550	1930	12,000
1922	7,877	1931	12,100
1923	8,000	1932	12,200
1924	9,151	1933	12,300
1925	9,500	1934	12,700
1926	10,000	1935	13,276
1927	10,500	1936	13,775
1928	11,000	1937	14,525
1929	11,500		

¹ Figures are before deducting reserves for depreciation, depletion, and amortization.

According to an analysis of the 1937 balance sheets of 34 oil companies, the net investment of this group was distributed among the various departments of the business as follows: production, 46.4 per cent; refining, 17.5 per cent; transportation, 13.0 per cent; marketing, 20.6 per cent; and miscellaneous, 2.5 per cent. The proportion of the total capital employed in the producing end of the business, amounting to nearly half, illustrates a significant characteristic of this industry.

The petroleum industry has grown to its present imposing size primarily through the reinvestment of earnings and capital charges, the debt structure of the industry being relatively small. For example, viewing the securities listed on the New York Stock Exchange on December 31, 1938, it may be noted that the market value of the oil-company bonds represented 10.1 per cent of the market value of all oil securities, whereas the corresponding ratio of bonds to all securities for all corporations listed on the Exchange was 22.7 per cent. The combined capital structure of 36 oil companies on December 31, 1937, is shown in Table IX.

TABLE IX.—*Combined capital structure of 36 oil companies on December 31, 1937*¹

	Million Dollars	% of Total
Funded Debt	427	5.8
Loans from Banks and Insurance Companies	105	1.4
Mortgages and Purchase Obligations	67	0.9
Notes and Sundry Items	185	2.5
Total Funded and Long-Term Debt	784	10.6
Preferred Stock	270	3.7
Common Stock	3,793	51.5
Surplus	2,517	34.2
Total Capital Employed	7,364	100.0

¹ Compiled by author.

During the past 16 years, according to *The Commercial and Financial Chronicle*, new corporate issues in the oil industry have totaled 2,325 million dollars, or an average of 145 million dollars per year. The rate of public financing, however, has varied sharply from period to period and, as shown in Fig. 17, bears a close relationship to the price of crude oil. This chart illustrates graphically how capital flow into the industry is influenced by price.

The fluctuations in the net income of the oil industry as compared with industry in general is shown in Table X. It may there be noted that oil earnings followed general earnings fairly closely during the ten-year period, 1928-1937, although the former dropped to greater depths during the depression years, 1930-1932, and advanced more rapidly in the recovery period 1933-1937. In 1937,

against 1929 expressed as 100, oil earnings stood at 92.8 per cent, while the earnings of 960 corporations attained a level of only 68.0 per cent.

FIGURE 17.—EFFECT OF CRUDE OIL PRICE UPON THE FLOW OF OUTSIDE CAPITAL INTO THE PETROLEUM INDUSTRY: CORRELATION BETWEEN AVERAGE PRICE OF MID-CONTINENT 36° CRUDE OIL AND NEW CORPORATE ISSUES OF OIL SECURITIES AS REPORTED BY "THE COMMERCIAL AND FINANCIAL CHRONICLE," BY YEARS, 1923-38.

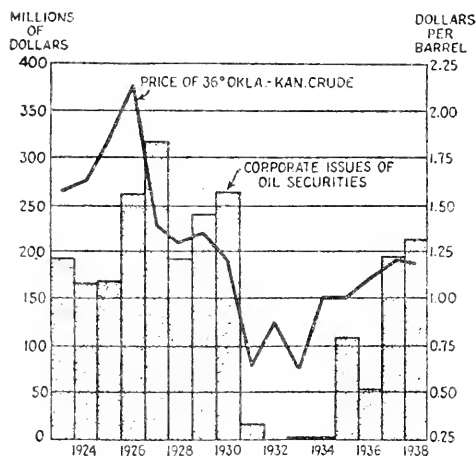


TABLE X.—Net income of 36 oil companies compared with 960 corporations, by years, 1928 to 1938

Year	36 Oil Companies ¹		960 Corporations ²	
	Million Dollars	Index Nos. (1929=100)	Million Dollars	Index Nos. (1929=100)
1928	601	85.5	4,083	86.1
1929	703	100.0	4,744	100.0
1930	318	45.3	2,922	61.6
1931	77	10.9	1,370	28.9
1932	77	11.0	364	7.7
1933	103	14.6	1,069	22.5
1934	194	27.6	1,413	29.8
1935	298	42.4	1,968	41.5
1936	477	67.9	2,998	63.2
1937	652	92.8	3,226	68.0
1938 Est.	340	48.4	—	—

¹ Net income available for common dividends, compiled by author.

² Net income available for preferred and common dividends, Standard Trade and Securities Service, New York, Vol. 88, No. 19, June 3, 1938, p. 6.

RÉSUMÉ

The criteria by which the competence of any industry may be judged include the ability to grow, to progress, to develop means for maintaining economic equilibrium, to build an efficient body of technology, to maintain satisfactory relations with its personnel, and to assume a form adapted to the progressive reduction of costs. If an industry attains these objectives or makes headway toward them, and at the same time transmits the fruits of technology and lowered costs to the consuming public, then that industry may be said to have given an acceptable account of its stewardship.

Few other industries have faced problems more difficult than those that have confronted the oil business at every stage in its development. The requirements of a dynamic market in fields that have changed the nature of modern industrial civilization have been imposing but have been satisfied. A brilliant body of technology has been constructed to meet the specialized requirements of every department of the undertaking, and vistas are opening up of continuing advancement in new and ingenious directions. The problems of equilibrium have been intricate and at times apparently insoluble, because of the handicaps imposed by the rule of capture; and yet a new mechanism has been evolved by the industry, with the co-operation of the oil-producing States and the Federal Government, which has made headway in meeting even this difficult and obdurate issue. The economic structure of the industry has adapted itself to the requirements of lessening costs, with a resultant deflation in price, so that the consumption of petroleum products has never been retarded by undue claims upon the existing purchasing power of the price.

The American petroleum industry has been charged with a wasteful development of its resource. The requirements of rapid expansion and the rule of capture have in the past been responsible for relatively heavy losses in the production of crude petroleum, but improved technology and proration have reduced these incidences as well as created offsetting economies. There still are flagrant examples of inefficiencies arising from hasty withdrawals; but, however sporadic when viewed singly, they no longer bulk large in the aggregate, and are subject to correction by stricter enforcement of State conservation laws, increased emphasis upon optimum production rates in all oil-producing States, and more rigid application of the principle of ratable takings. The technical knowledge relating to the utilization of reservoir energy, gained in recent years under the restricted flow imposed by proration, has revolutionized the production concept and grossly wasteful production practices are being eliminated to residual situations where legal technicalities or political laxity are perpetuated in their favor.

The problem of economic equilibrium in the petroleum industry in the interior is wholly solved. The proration mechanism has not yet been perfected, its structure, range, or application. It can be impaired if price-fixing is permitted to enter into its operation, for the existence of a flexible price structure is essential to control and proportionate capital flow. Its administration must be developed around the optimum-rate principle and in such manner that unnecessary wells are not required under its rulings and the rate of development accorded bilateral flexibility in responding to economic influences. The production quotas provided by the U. S. Bureau of Mines deserve ready acceptance by the State conservation commissions, and the distinction between a crude oil quota balanced against refiners' demand and one equated to consumers' demand for products requires a clear perception on the part of all those interested in equilibrium. Nevertheless, a pragmatic, flexible plan of action has been in course of evolution for a period of twelve years, and the essential framework of a workable operating structure has already been established.

The oil business in the United States is the first great industry to develop a new method of conducting its operations, having altered the design of its economic structure in order to make the enterprise more susceptible to regulation by the ordinary laws of economics and to free it from the disturbing influences of the unchecked operation of the rule of capture. The industry is experimenting with a new economic form. The further evolution of proration will afford a fascinating case history of an effort by competitive enterprise, within our existing legal background, to find a practical solution for a complicated problem of unique character.

EXHIBIT No. 1141
[Submitted by John D. Gill]

DOMESTIC CONSUMPTION PETROLEUM PRODUCTS
VOLUME and VALUES.

①

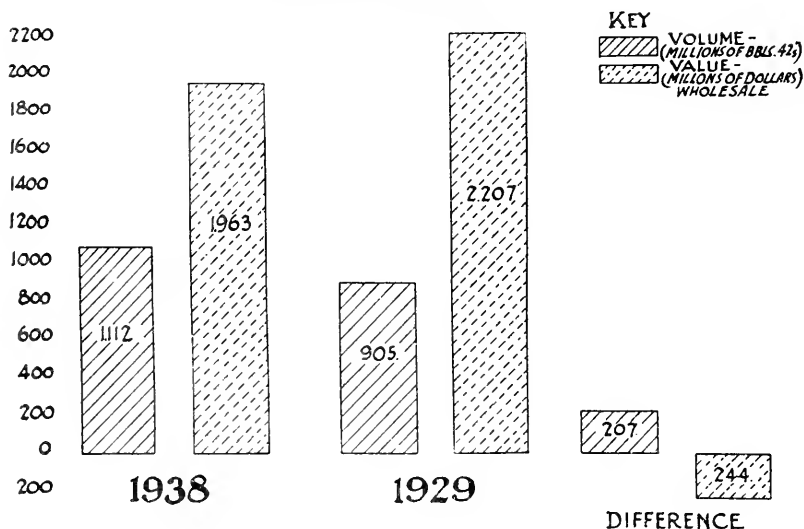


EXHIBIT No. 1142
[Submitted by John D. Gill]

DOMESTIC CONSUMPTION PETROLEUM PRODUCTS
VOLUME and VALUES.

②

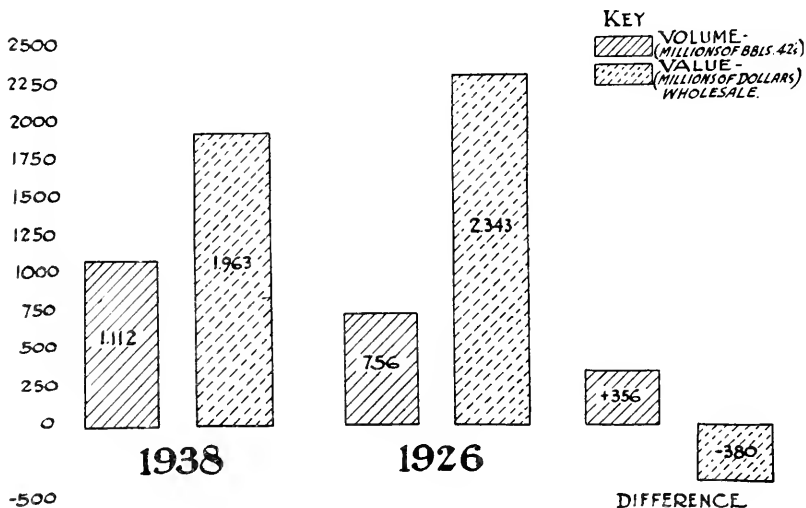


EXHIBIT No. 1143
[Submitted by John D. Gill]

DOMESTIC CONSUMPTION PETROLEUM PRODUCTS 1937 RELATED TO 1929

③

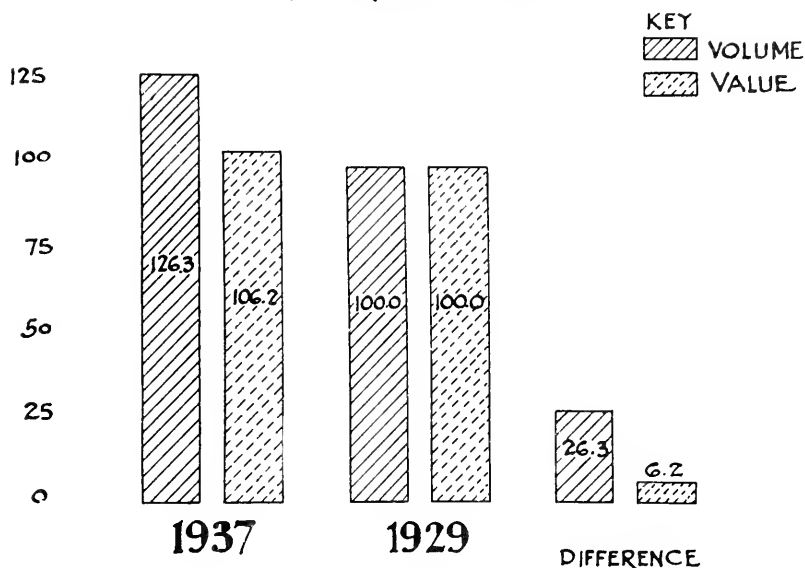


EXHIBIT No. 1144
[Submitted by John D. Gill]

DOMESTIC CONSUMPTION PETROLEUM PRODUCTS 1937 RELATED TO 1926

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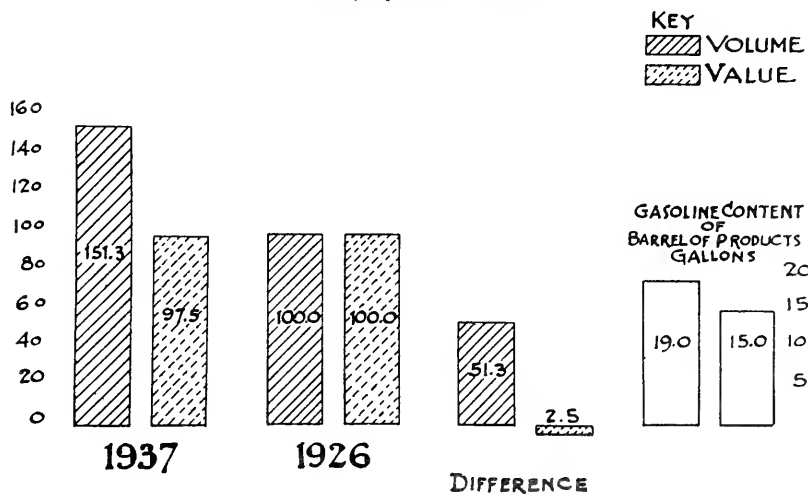


EXHIBIT No. 1145
[Submitted by John D. Gill]

VOLUME and VALUE of DOMESTIC CONSUMPTION
1927 - 1938
DIFFERENCE RESULTING FROM PRICE DECLINES

⑤

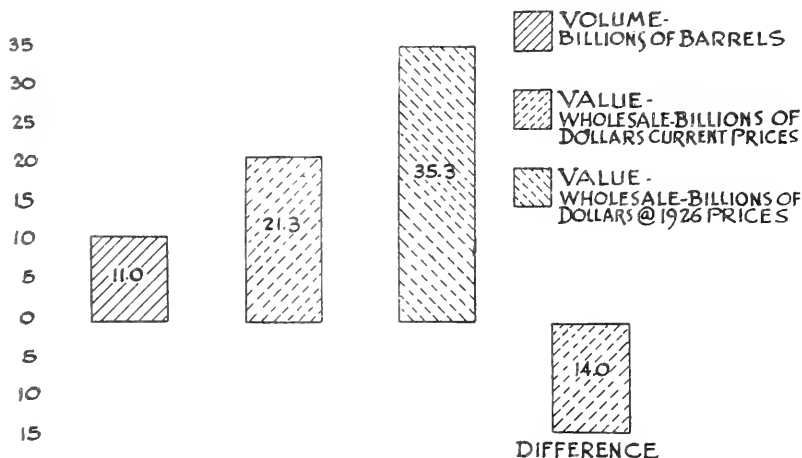


EXHIBIT No. 1146
[Submitted by John D. Gill]

COMPARISON OF PRICE INDEXES
1929 = 100

⑥

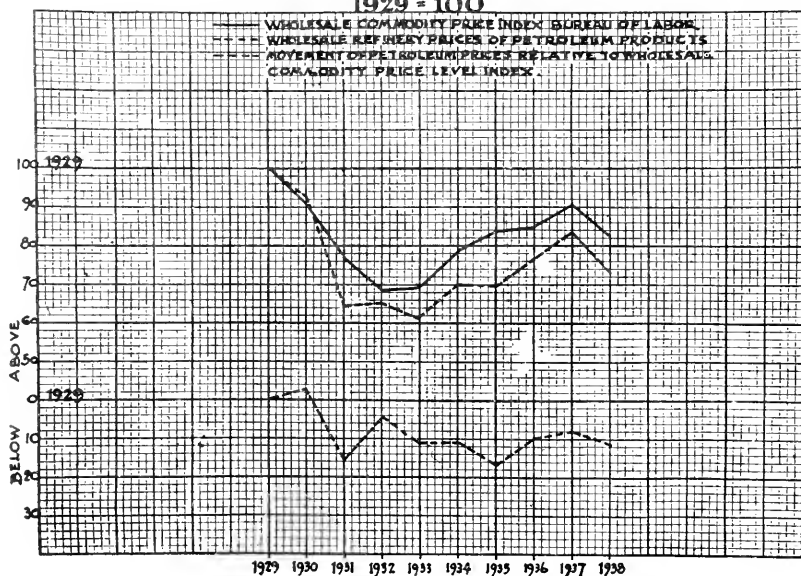


EXHIBIT No. 1147
[Submitted by John D. Gill]

COMPARISON OF PRICE INDEXES 1926=100

7

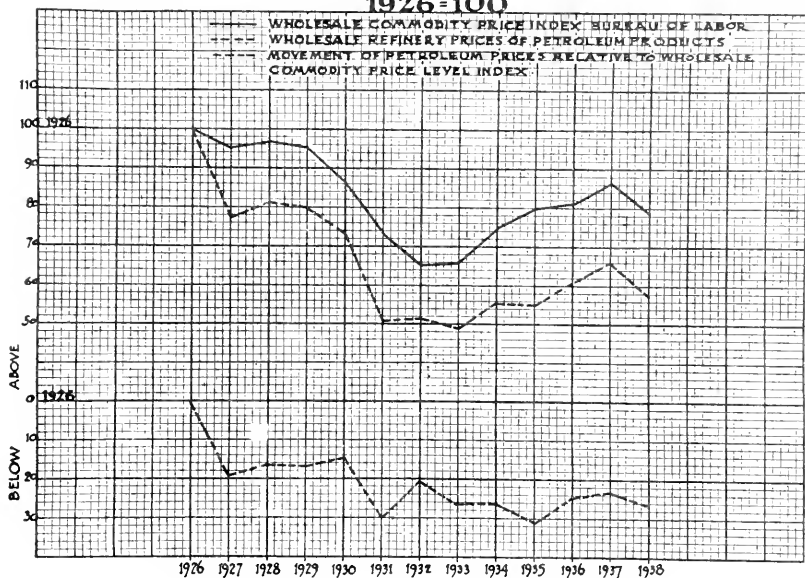


EXHIBIT No. 1148
[Submitted by John D. Gill]

COMPARISON OF PRICE INDEXES 1923=100

8

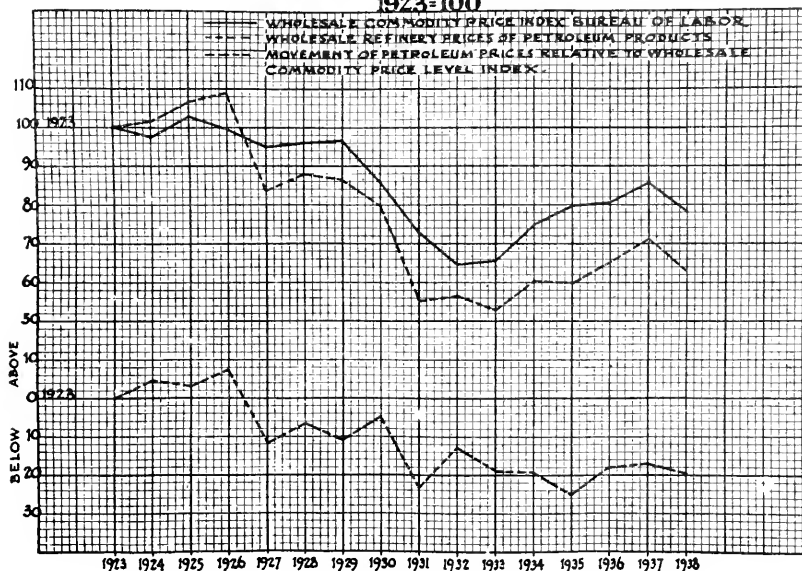


EXHIBIT No. 1149

[Submitted by John D. Gill]

⑩

UNITED STATES
CRUDE OIL PRODUCTIONS
MILLIONS OF BARRELS 42's

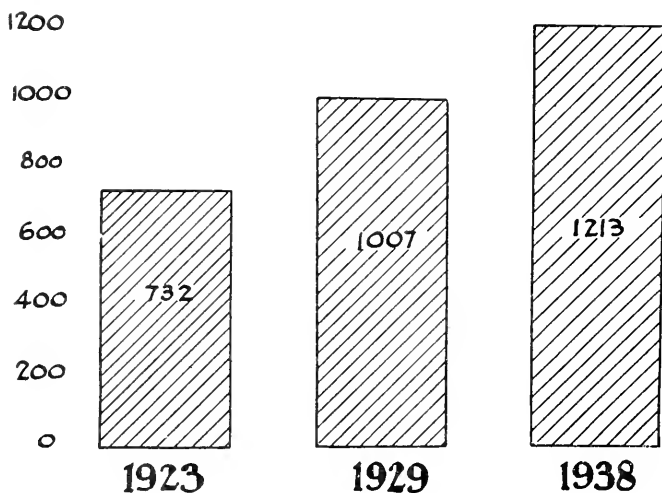


EXHIBIT No. 1150

[Submitted by John D. Gill]

⑪

UNITED STATES
CONSUMPTION OF PETROLEUM PRODUCTS
MILLIONS OF BARRELS

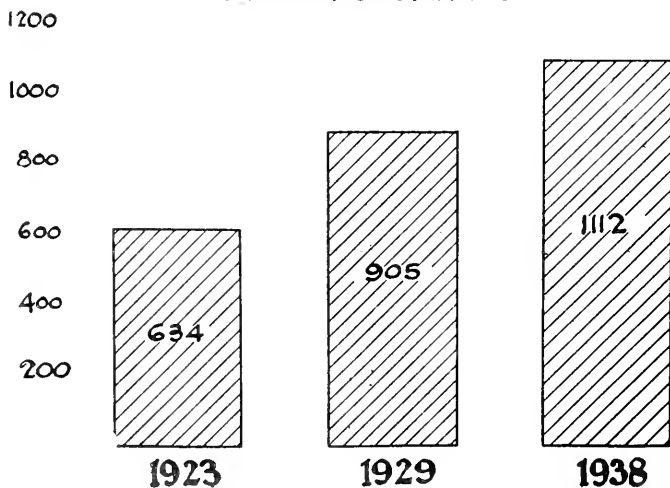


EXHIBIT No. 1151
[Submitted by John D. Gill]

**UNITED STATES
PRODUCTION OF MOTOR FUEL
MILLIONS OF BARRELS**

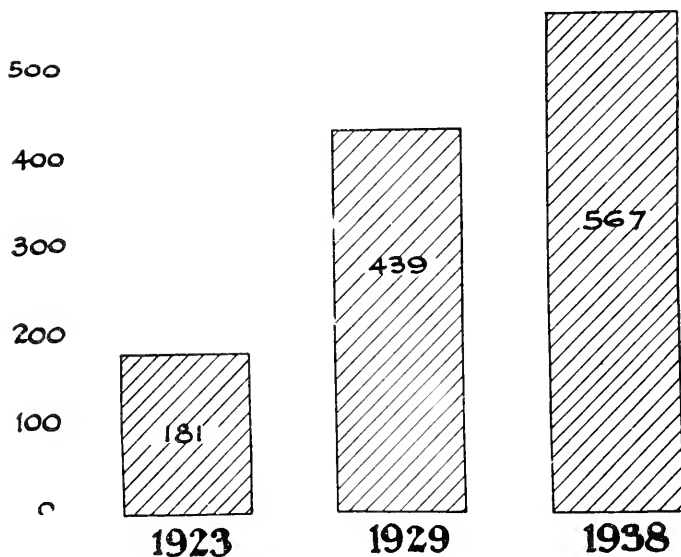
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EXHIBIT No. 1152
[Submitted by John D. Gill]

**UNITED STATES
CONSUMPTION OF MOTOR FUEL
MILLIONS OF BARRELS**

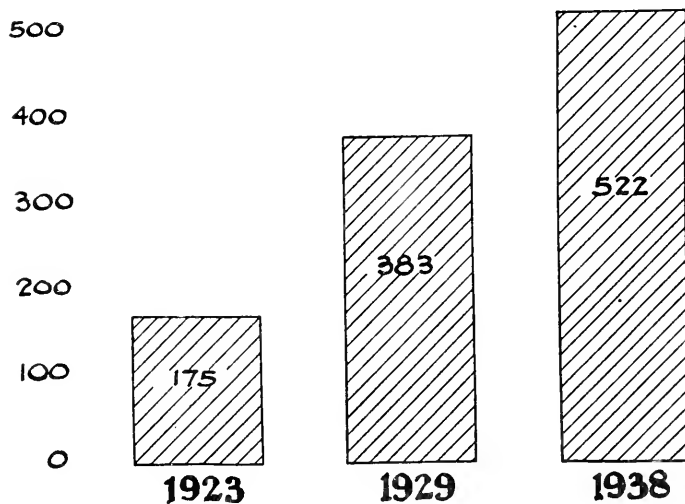
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EXHIBIT No. 1154

[Submitted by John D. Gill]

INDEXES OF OIL INDUSTRY NET INVESTMENT AND UNITED STATES CRUDE RUN TO STILLs

U.S. CRUDE RUN TO STILLs
NET WORTH AND BONDS 24 OIL COMPANIES

1923=100

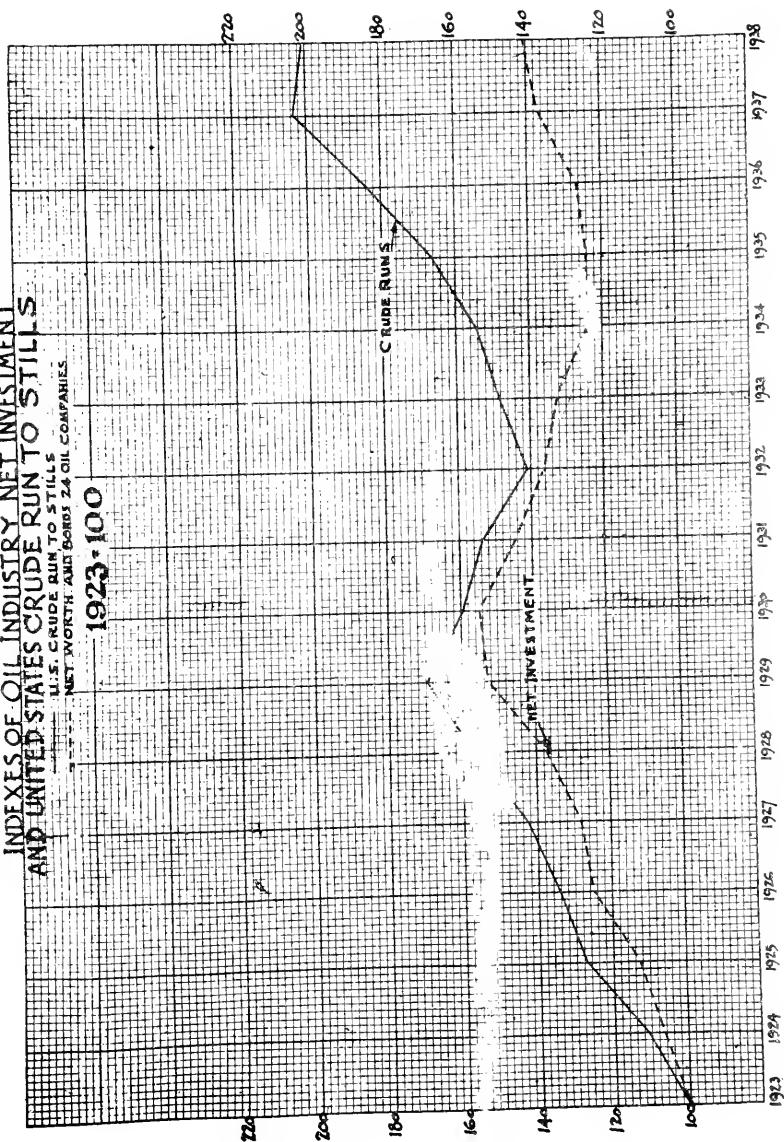


EXHIBIT No. 1155

[Submitted by John D. Gill]

MAKE-UP OF THE 24 OIL COMPANY GROUP, SEPTEMBER 21, 1939

1. Amerada Corporation
2. Atlantic Refining Company
3. Barnsdall Corporation
4. Barnsdall Refining Corporation (1935-1938)
5. Consolidated Oil Corporation
6. Pierce Petroleum Corporation (1923-1929)
7. Prairie Oil & Gas Company (1923-1930)
8. Prairie Pipe Line Company (1923-1930)
9. Rio Grande Oil Company (1925-1931) 23 & 24 Not available
10. Continental Oil Company (1924-1938) 23 Not available
11. Marland Oil Company (1923-1928)
12. Gulf Oil Corporation
13. Paragon Refining Company (1923-1929)
14. Houston Oil Company of Texas
15. Mid-Continent Petroleum Corporation
16. Ohio Oil Company
17. Illinois Pipe Line Company (1923-1929)
18. Transcontinental Oil Company (1923-1929)
19. Phillips Petroleum Company
20. Independent Oil & Gas Company (1923-1929)
21. Pure Oil Company
22. Seaboard Oil Company (Delaware)
23. Shell Union Oil Corporation
24. Skelly Oil Company
25. Socony-Vacuum Oil Company (1931-1938)
26. Standard Oil Company of New York (1923-1930)
27. Vacuum Oil Company (1923-1930)
28. White Star Refining Co. (1928-1929) 23-27 Not available
29. White Eagle Oil & Refining Co. (1923-1929)
30. General Petroleum Corporation (1923-1925)
31. Standard Oil Company (California)
32. Pacific Oil Company (1923-1925)
33. Standard Oil Company (Indiana)
34. Standard Oil Company (New Jersey)
35. Colonial Beacon Oil Company formerly Beacon Oil Company and Colonial Filling Stations (1924-1928) 1923 Not available
36. Standard Oil Company (Ohio)
37. Solar Refining Company (1923-1930)
38. Sun Oil Company
39. Texas Corporation
40. California Petroleum Corporation (1923-1927)
41. Indian Refining Company (1923-1930)
42. Texas Pacific Coal & Oil Company
43. Tide Water Associated Oil Company (1925-1938)
44. Associated Oil Company (1923-1924)
45. Tidewater Oil Company (1923-1924)
46. Union Oil Company of California

EXHIBIT No. 1156

[Submitted by John D. Gill]

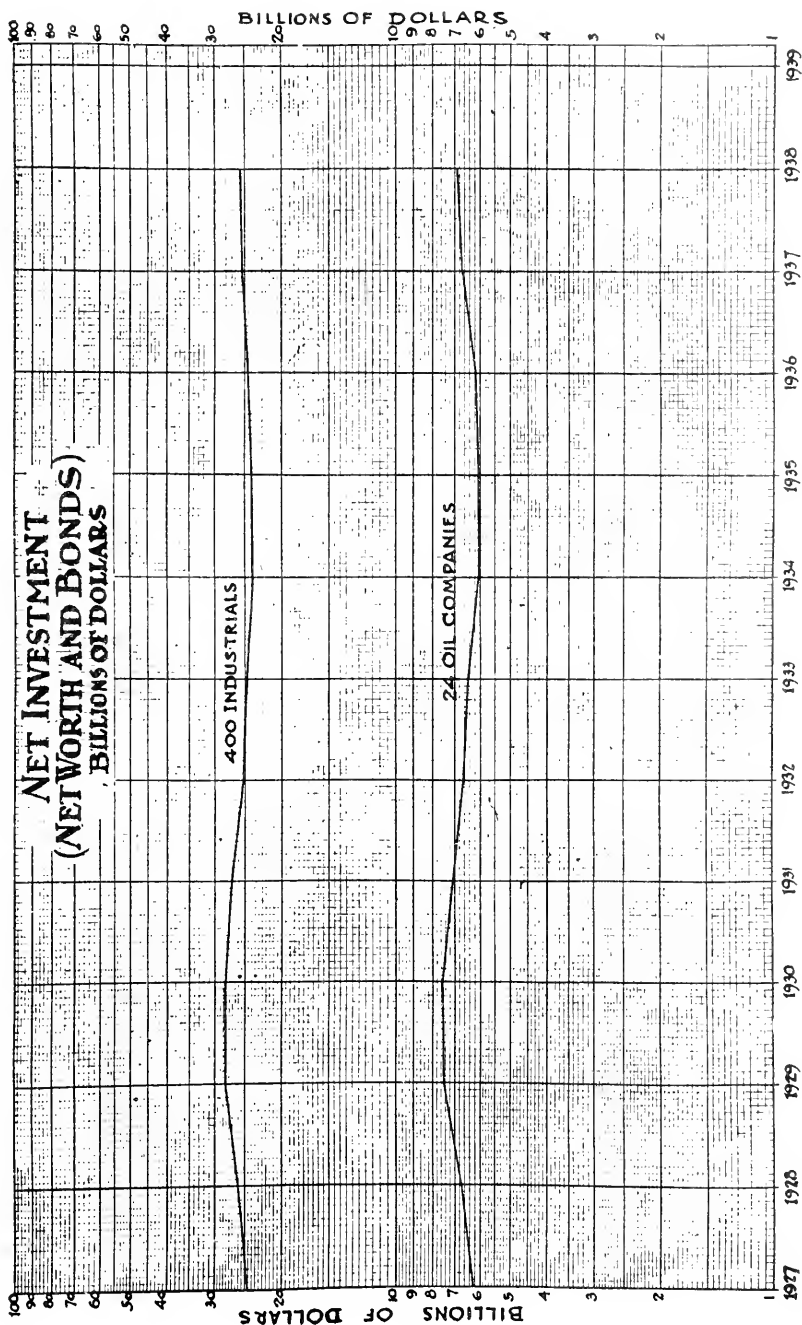


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[Submitted by John D. Gill]

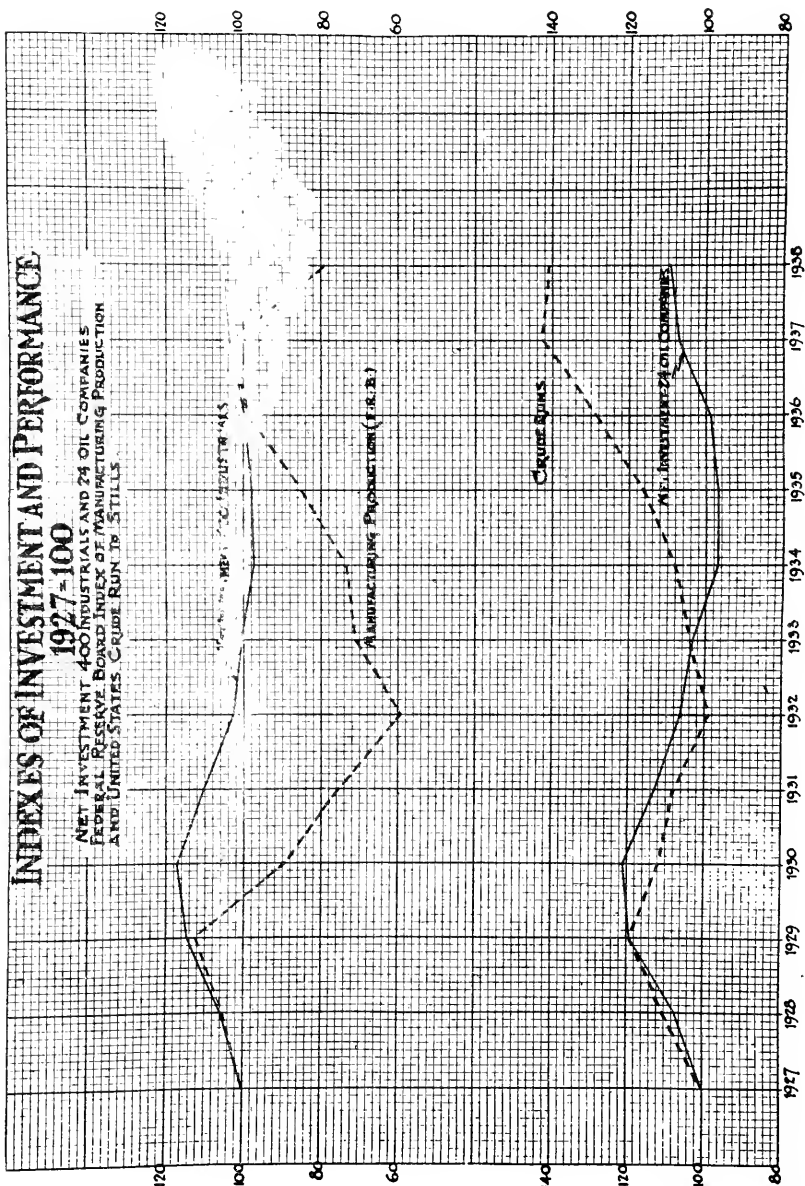


EXHIBIT No. 1158

[Submitted by John D. Gill]

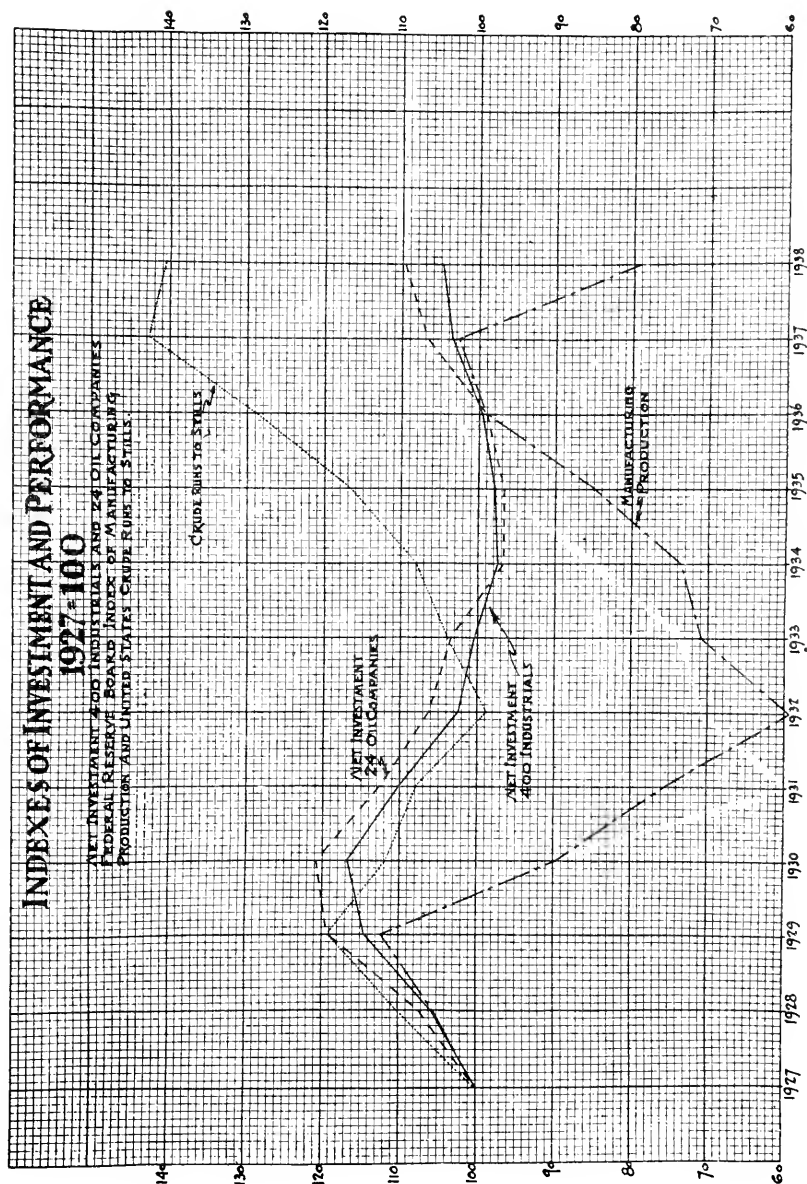
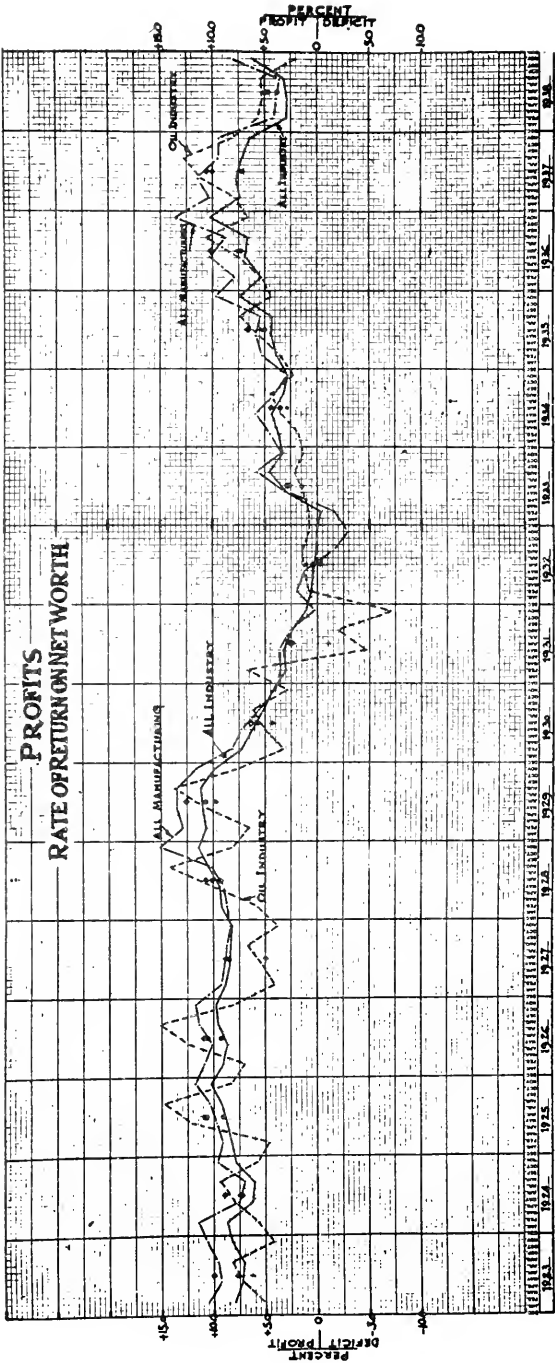
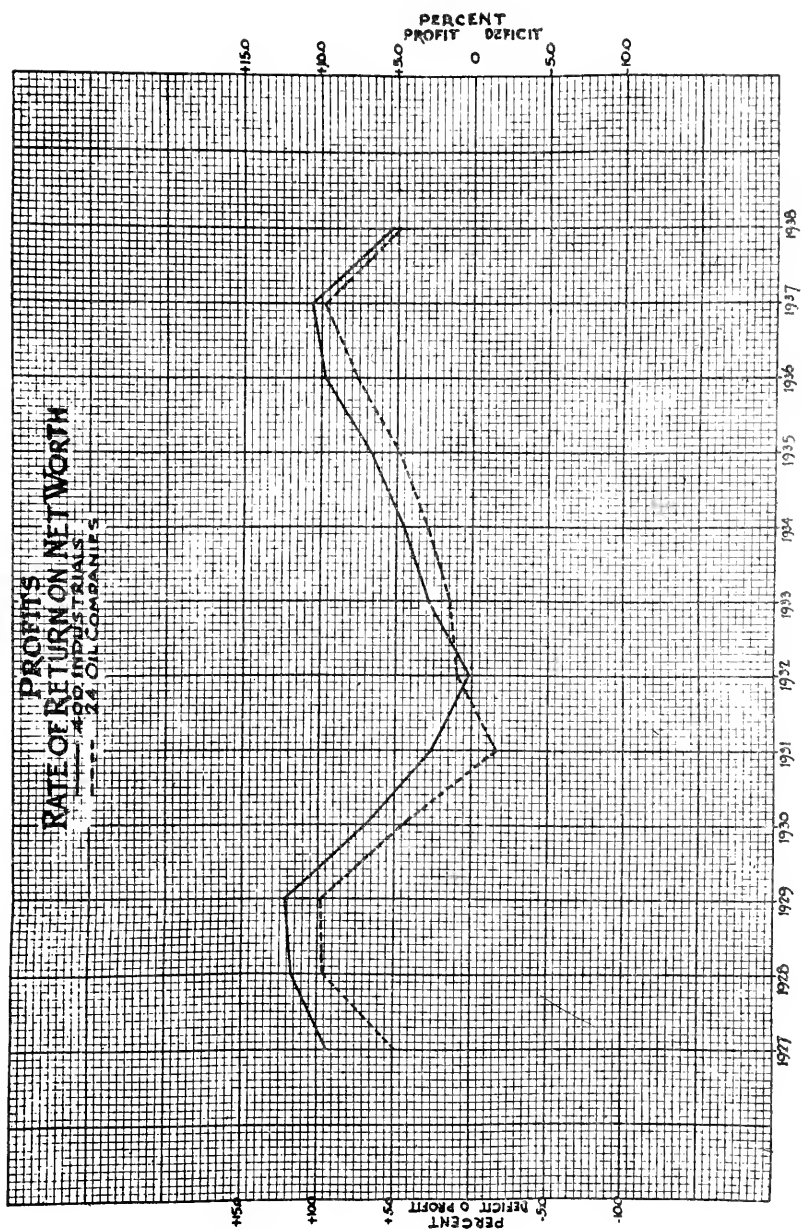


EXHIBIT No. 1159

[Submitted by John D. Gill]





(Submitted by John D. Gill)

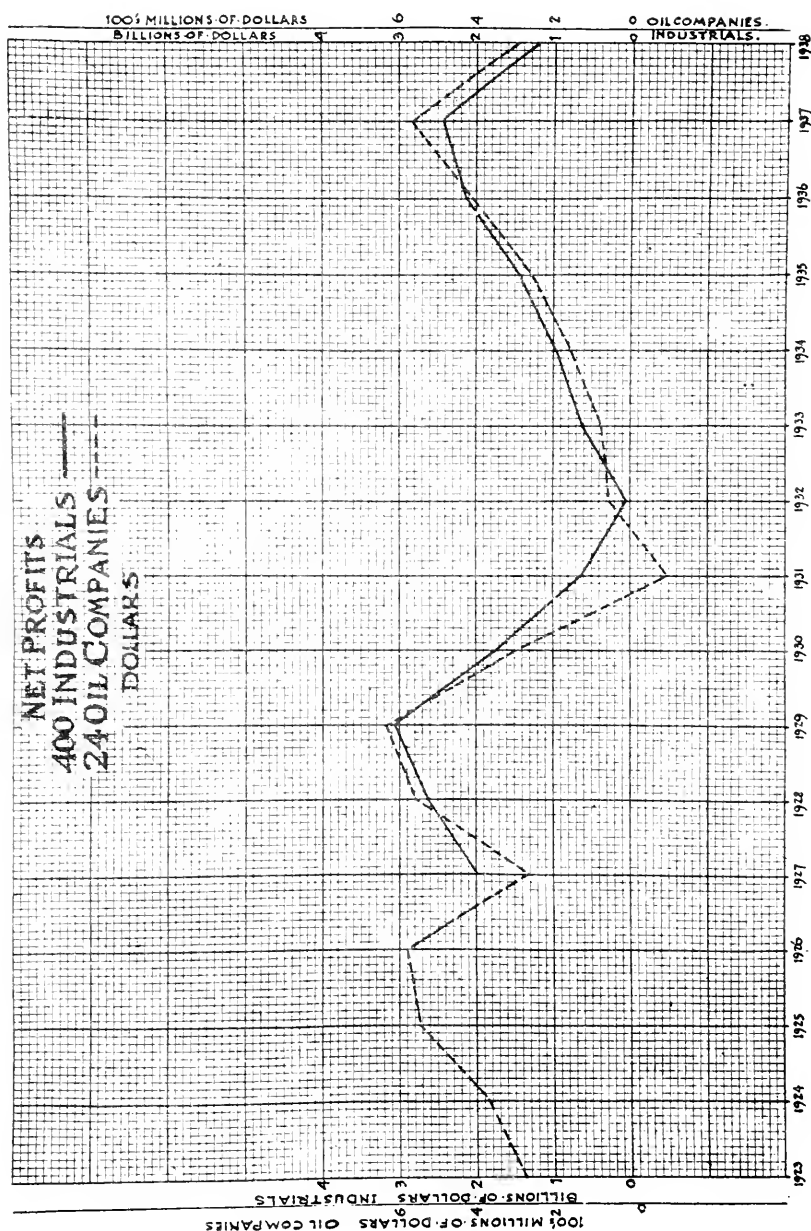


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[Submitted by John D. Gill]

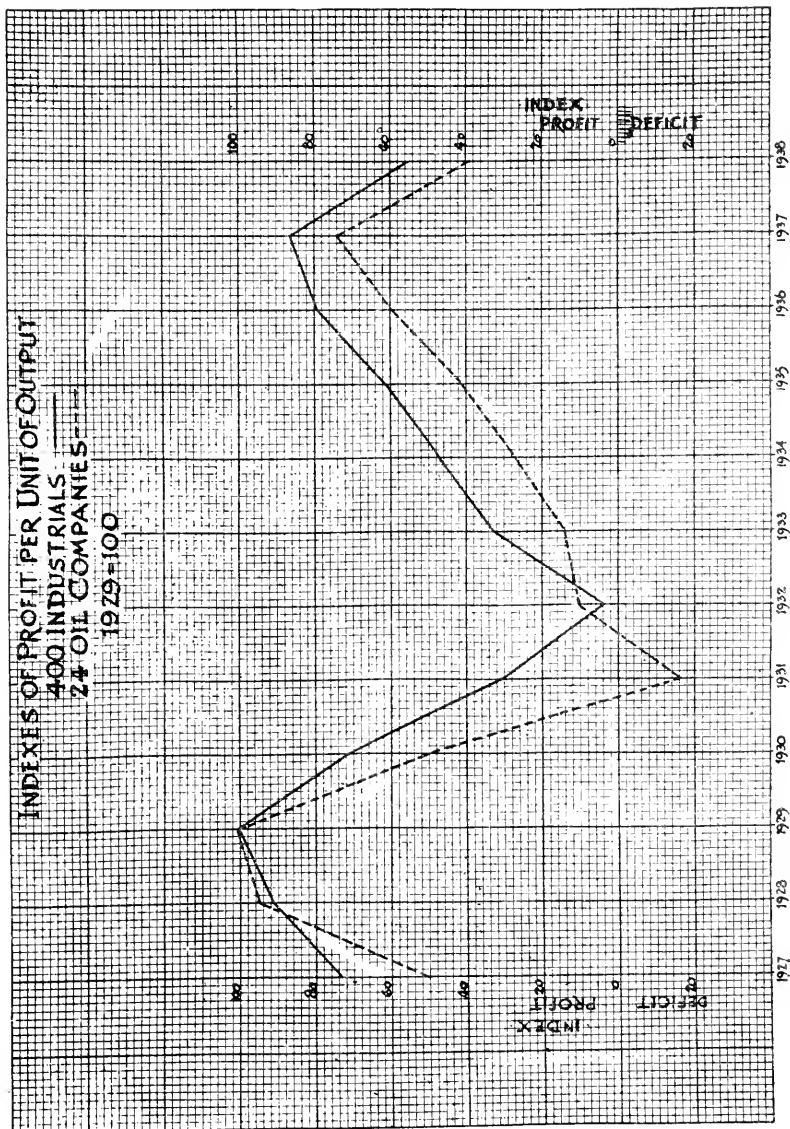


EXHIBIT No. 1163

[Submitted by John D. Gill]

OIL INDUSTRY INCOME MILLIONS OF DOLLARS

19

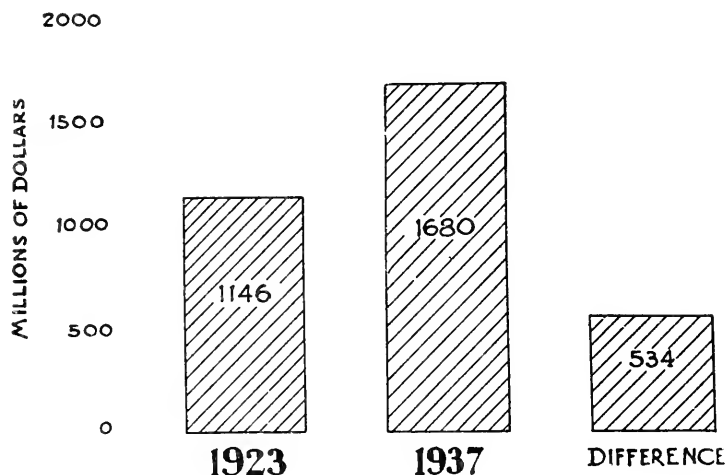


EXHIBIT No. 1164

[Submitted by John D. Gill]

OIL INDUSTRY SERVICE

20

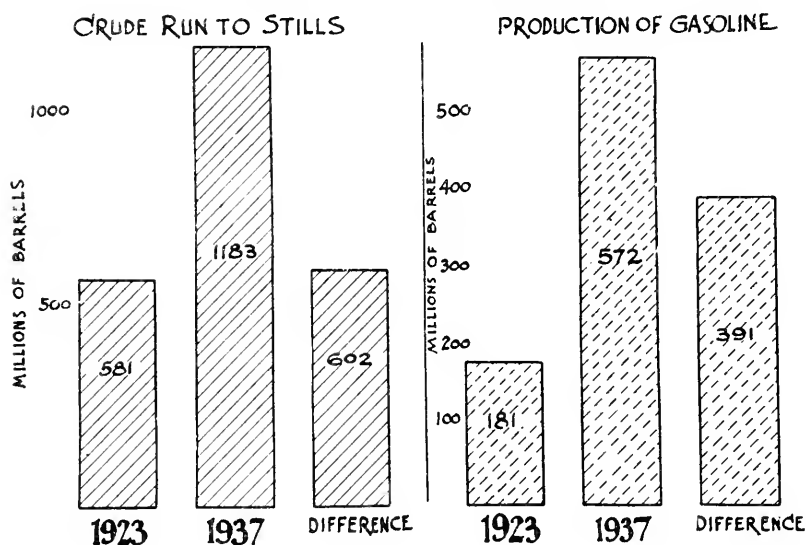


EXHIBIT No. 1165

[Submitted by John D. Gill]

(21)

OIL INDUSTRY INCOME
 1937 INCOME ADJUSTED FOR 1923-1937
 CHANGE IN GENERAL PRICE LEVEL
 MILLIONS OF DOLLARS.

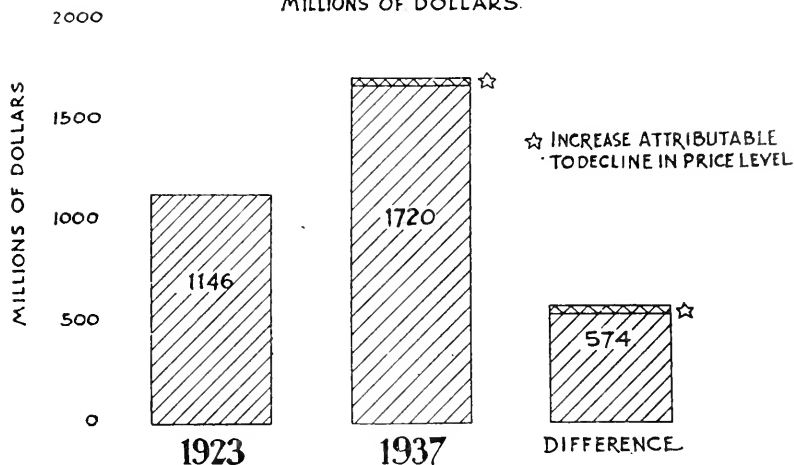


EXHIBIT No. 1166

[Submitted by John D. Gill]

(22)

OIL INDUSTRY INCOME AND THE NATIONAL INCOME
 1000 DOLLARS

	<u>1923</u>	<u>1937</u>	<u>% INCREASE</u>
SALARY & WAGES	562.900	637.600	
RENTS & ROYALTIES	134.600	247.300	
INTEREST	40.020	64.950	
DIVIDENDS & ENTREPRENEURIAL WITHDRAWALS	302.050	412.690	
BUSINESS SAVINGS	<u>107.050</u>	<u>317.510</u>	
OIL INDUSTRY INCOME	1,146.620	1,680.050	46.5
NATIONAL INCOME	6,7021.000	6,9775.000	4.1
OIL INDUSTRY AS PERCENT OF NATIONAL	1.71	2.41	41.0 (RELATIVELY) 70 (ABSOLUTELY)

EXHIBIT No. 1167

[Submitted by John D. Gill]

Determination of Data Included in National Income

RENTS AND ROYALTY

September 20, 1939

1923

Rents:

Indications of rents paid for leased areas in 1919 was calculated from data contained in Census of Mines and Quarries, which reported:

Rents & Royalty expenses per barrel of crude produced.....	25. 5¢
Calculated Royalty (12.5% of Value).....	23. 1¢

Rent Expense.....	2. 4¢
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The estimated 1923 rent expense, 2.4¢ per barrel of crude produced was based upon the 1919 expense and a 70% factor to provide for the increased productivity ¹ of operating wells. Equation used as follows:

$$2.4¢ \text{ per barrel} \times 70\% \times 732,400,000 \text{ (annual production)} = \$12,300,000$$

Royalty:

Royalty factor of 12.5% of total crude produced. Equation used as follows:

$12.5\% \times 732,400,000 \text{ barrels} \times \1.34 per barrel	\$122,300,000
Rent.....	12,300,000

Combined Rent & Royalty.....	\$134,600,000
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September 21, 1939

1937

Rents:

Total area under lease estimated to be.....acres ² ..	115,000,000
Annual rental per acre.....	³ \$0.38
Equation:	

$$115 \text{ million acres} \times \$0.38 = \$43,000,000$$

Royalty:

Royalty factor 13.5% ⁴ of total crude produced. Equation:

$$13.5\% \times 1,279,160,000 \text{ bbls.} \times \$1.78 \text{ per bbl} = \$204,300,000$$

Combined Rent & Royalty.....	\$247,300,000
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¹ Productivity was as follows:

1918-19-20 average daily production per well.....	4.63 barrels
1922-23-24 " " " ".....	6.73 " "

² Based upon data published (Oil & Gas Journal, 1936) indicating total leased area in 1936 was 93.5 million acres. More data indicate substantial increase in leased acreages, i. e., Leased areas in Illinois have increased from 650,000 acres to 7,074,000 acres (National Oil Scouts, 1938); Kansas, from 8 million acres (1936) to 12.5 million acres in 1937.

³ Petroleum Register, August 7, 1936; Lease rentals (1935) in Texas \$15 million; acreage leased, 40 million equal to \$0.375 per acre.

More recent data (C. F. Roeser, 5/19/38) indicate rentals in Texas, 1937, equalled \$17,135,000 on 45 million acres equal to \$0.38 per acre.

⁴ Cost of crude production, U. S. Tariff Commission, 1931:

Total production of companies studied.....	564,964,000 barrels
Total company interest.....	488,606,000 " "
Total company interest to total production.....	86.5%

EXHIBIT No. 1168

[Submitted by John D. Gill]

23

MANUFACTURES INCOME AND THE NATIONAL INCOME

MILLIONS OF DOLLARS

	<u>1923</u>	<u>1937</u>	<u>% INCREASE</u>
MANUFACTURES	15285	16629	8.8
NATIONAL INCOME	67021	69775	4.1
MANUFACTURERS AS PERCENT OF NATIONAL	22.8	23.8	4.4 (RELATIVELY) 1.0 (ABSOLUTELY)

EXHIBIT No. 1169

[Submitted by John D. Gill]

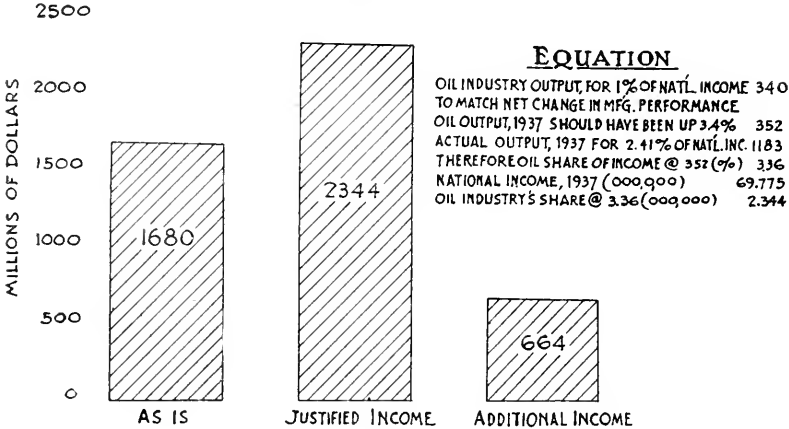
24

ACHIEVEMENTS OF OIL INDUSTRY VS MANUFACTURERS

	<u>1923</u>	<u>1937</u>	<u>% INCREASE</u>
<u>OIL INDUSTRY</u>			
PERCENT OF NATIONAL INCOME	1.71	2.41	41.0
CRUDE RUN TO STILL	581	1,183	103.5
(MILLIONS OF BARRELS)			
PRODUCTION OF GASOLINE	181	572	215.8
(MILLIONS OF BARRELS)			
UNITS OF SERVICE FOR EACH 1% OF NATIONAL INCOME	340	491	44.4
<u>MANUFACTURERS INDUSTRY</u>			
PERCENT OF NATIONAL INCOME	22.8	23.8	4.4
INDEX OF MANUFACTURERS PRODUCTION (FRB 1923/25 = 100)	101	109	7.9
UNITS OF SERVICE FOR EACH 1% OF NATIONAL INCOME	4.43	4.58	3.4

EXHIBIT No. 1170
[Submitted by John D. Gill]

ADDITIONAL INCOME JUSTIFIED BY COMPARATIVE PERFORMANCE
ASSUMING THAT OIL INDUSTRY'S INCOME GREW RELATIVE
TO PERFORMANCE AT SAME RATE AS MANUFACTURING INCOME
RELATIVE TO PERFORMANCE. 25
1937



"EXHIBIT No. 1171," introduced on p. 7162, appears in Hearings, Part 5, appendix, p. 2304.

"EXHIBIT No. 1172," introduced on p. 7245, appears in Hearings, Part 6, appendix, p. 2748.

EXHIBIT No. 1173
SERVICE STATION DATA, SUN OIL CO., AS REQUESTED BY DR. I. LUBIN
[Submitted by Mr. J. Howard Pew]

Stations Operated.....	384
Total Monthly Pay Roll.....	\$107, 490
Total Number of Service Station Employees.....	1, 088

EXHIBIT No. 1174 faces this page.

EXHIBIT No. 1175
[Submitted by Marion M. Travis]

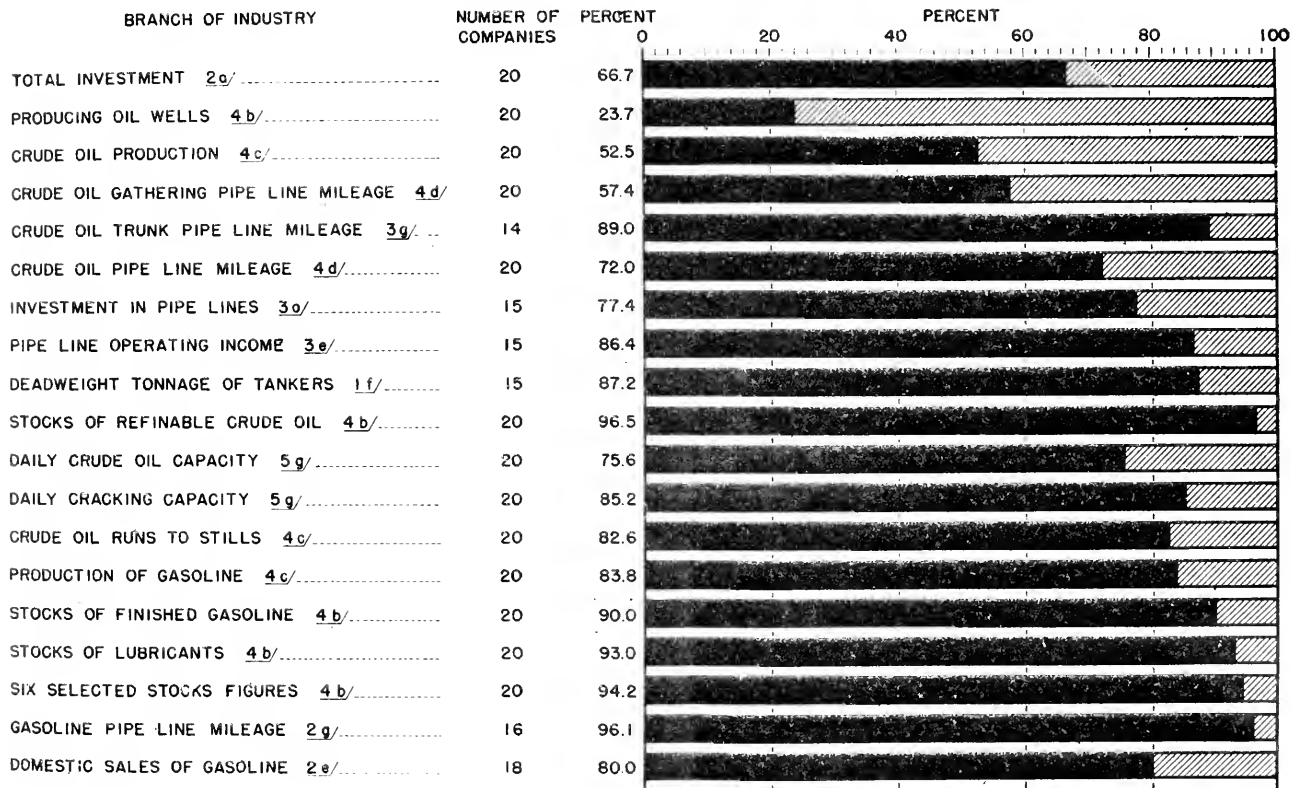
305 STERLING BLDG., HOUSTON, TEXAS,
October 20, 1938.

Mr. AXTEL J. BYLES,
President, American Petroleum Institute,
50 West 50th St., New York, N. Y.

DEAR MR. BYLES: You will recall that I wrote you a letter last March prognosticating the trend in the oil business and suggesting a refinery shutdown as a cure for the situation, which you thought was illegal. You further stated that you thought the situation would right itself by June, etc. In the light of what has transpired, it is obvious that you were wrong and that I, unfortunately, was right.

(Submitted by T. N. E. C. staff)

PERCENTAGE OWNERSHIP OR CONTROL BY MAJOR OIL COMPANIES IN VARIOUS BRANCHES OF THE PETROLEUM INDUSTRY



a-DEC. 31, 1938; b-DEC. 31, 1937; c-1937; d-JUNE 30, 1936; e-1938; f-SEPT. 30, 1938; g-JAN. 1, 1938

1. U. S. MARITIME COMMISSION AND PETROLEUM CONSERVATION DIVISION, DEPARTMENT OF THE INTERIOR

2. MOODY'S MANUAL OF INVESTMENTS: TEMPORARY NATIONAL ECONOMIC COMMITTEE QUESTIONNAIRE FOR OIL COMPANIES, AND AMERICAN PETROLEUM INSTITUTE

3. INTERSTATE COMMERCE COMMISSION

4. U. S. BUREAU OF MINES

5. U. S. BUREAU OF MINES. INCLUDES RICHFIELD OIL CORPORATION



MAJOR COMPANIES



OTHER COMPANIES

MILLIONS OF DOLLARS

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My purpose in writing this letter is to bring to your attention the fact that the mistakes of last year are again being repeated this year and the results will be just as disastrous if positive steps are not taken to correct conditions.

My dear Mr. Byles, I realize that it may appear to you that an independent refiner, whose Company is refining only 20,000 barrels of crude oil per day, may not be competent or qualified to criticize the Industry or to make a serious contribution towards solving some of the difficulties that beset the Industry.

Should you have such a thought, I would point out first, that the independent refiner has a definite advantage in that he is able to know at all times whether he is making money or losing it and to determine why. Second, we independents have been looking for constructive leadership from the larger interests but there has been none forthcoming.

It is for this reason that I am taking the liberty of enclosing herein several pertinent and timely suggestions which we believe if adopted would go a long way toward eliminating the possibility of a repetition of the disastrous experience of this year.

I would deeply appreciate an early reply to this letter and to the enclosure, setting out your reactions to both.

I would also appreciate an invitation that would afford me an opportunity to express our criticisms and our views at the forthcoming A. P. I. meeting at Chicago.

With kindest regards,

Yours very truly,

SOUTHPORT PETROLEUM COMPANY,
By _____

MMT:MS
Encl.

SUGGESTIONS FOR ELIMINATING IMPORTANT EXISTING EVILS AND PRACTICES THAT HAVE CONTRIBUTED TO PRESENT CHAOTIC CONDITION IN THE PETROLEUM INDUSTRY

First, that the American Petroleum Institute cease publishing composite statistics of refined oils. For instance the A. P. I. hand out composite gas oil and fuel oil statistics for the whole United States under one heading. This has done incalculable harm, since the buyers use these composite statistics to break down the refined price structure of these commodities. In the first place, gas oil is an overhead product and is not in any way used for the same purpose as fuel oil. There is no relationship between these two products and it is malicious to group the two under one heading.

Second, gas oil or fuel oil located in California or in the Rocky Mountain states or in the interior of the North Central states can in no way affect the market price of the Gulf Coast and Atlantic Seaboard and vice-versa.

To illustrate the point, the statistical position of gas oil on the Gulf Coast and Atlantic Seaboard is almost identical to what it was a year ago, if we consider the 1,000,000 to 1,500,000 barrels of diesel gas oil stored on the Gulf by the Asiatic. Last year there was a distinct shortage of gas oil to meet the seasonable consumptive demand for furnace oil. This demand will be even greater this year. Nevertheless, gas oil is $\frac{3}{4}$ ¢ per gallon lower than it was a year ago, due principally to the bearish effect on the market by handing out for publication composite statistics as pointed out above.

Third, the A. P. I., probably unknowingly, has become the instrumentality by which California is producing more crude than it has agreed to do under the States Compact Agreement. This is made possible by the A. P. I. accepting the fuel oil statistics of that State without making a careful inquiry as to the origin of this purported fuel oil. Even a superficial inquiry will disclose that the tremendous gains in California fuel oil are the result of classifying the 12 to 18 gravity crude oil produced by California as fuel oil. It is obvious that by so doing, California has been producing probably 100,000 barrels a day more oil than it would have otherwise been permitted to do under the States Compact Agreement. Had this crude oil been produced as crude and not classified as fuel oil, the market structure for fuel oil in the United States would not have reached the depths that it has.

Fuel oil in California, the Rocky Mountain states or North Central states, cannot and should not affect the market of fuel oil on the Gulf Coast or Atlantic Seaboard. Yet by publishing composite fuel oil statistics, the fuel oil market was seriously and adversely affected.

We would, therefore, urge that the A. P. I. cease to give out for publication any composite figures for any refined products, but should classify each refined product by itself and where located.

We would urge that the A. P. I. set up a marketing service, if it may legally do so, to replace Platt's Oilgram, this service reflecting only actual sales transactions. It might also reflect offers and bids. If the A. P. I. may not legally do so, then the A. P. I. should supervise the method to be employed by trade journals which attempt to reflect the market. In the opinion of the writer, the erratic way in which Platt's Oilgram has reflected the market, has cost the Industry losses of untold millions.

To illustrate, Platt's Oilgram will not reflect an increase in the market unless the increase is higher than the high quotation for the product quoted, yet time and time again it has lowered the price not only of one product, but of all products, using merely a purported offering and not a sale. It is indeed a sad commentary that a trade journal which has no stake in the Industry can have such a devastating effect upon it.

Platt's Oilgram insists upon publishing different prices for Export and Domestic products when no such difference exists. The Export and Domestic market should be consolidated under one heading and in the case of gasoline, the octane rating of the gasoline should be stated for each different gasoline published. In connection with gasoline, Platt's Oilgram should be required to publish leaded and unleaded gasolines separately. There is a great deal of difference in the cost of producing. It is more expensive to produce unleaded high-octane gasoline than leaded. The Export market is for water-white, unleaded high octane gasoline and not for dyed leaded gasoline.

We recognize that the Industry as a whole may not legally enter into agreements after certain things have taken place in order to correct existing conditions, i. e. like shutting down refineries until such time as the over-supply of refined products will have been consumed. There is no question, but that the members of the Industry may individually take such steps and do such things as will result in a balance of supply and demand.

The most valuable contribution that the A. P. I. can make to the Industry is to interpret trends and conditions that are clearly indicated and point out to the members what steps should be taken towards maintaining a balance between supply and demand. The Steel Industry, the Lumber Industry and the Coal Industry know how to do this legally, and there is no reason why the Petroleum Industry should be different.

And finally, the A. P. I. should take definite steps to educate its members of the evils that result from the haphazard production of refined products without relationship to the indicated consumptive demand.

To illustrate, crude runs to stills for the week ending the 16th, were 3,305,000 barrels per day, which was a jump of 105,000 a day over the 3,200,000 barrels that was run to stills the previous week. This tremendous increase in runs to stills was in all probability actuated by the limited amount of gas oil there actually exists on the Gulf Coast and Atlantic Seaboard, notwithstanding the fact that the composite statistics on gas oil and fuel oil would indicate that there was no shortage of gas oil on the Gulf Coast and Atlantic Seaboard.

Increased runs to stills, if maintained, are bound to produce an over-supply of gasoline, the same way it did last year, and again we will be confronted with an over-hanging gasoline inventory out of all proportion to the consumptive demand.

The A. P. I. should bring to the attention of its members that additional gas oil can be produced without increasing runs to stills by the simple expedient of squeezing the topped crude residue harder so as to produce more gas oil. Not only can the additional gas oil required be produced without increasing runs to stills by doing as explained above, but this will actually prove to be a very profitable operation, for otherwise the gas oil that is left in the topped residue is converted into gasoline and fuel oil, neither of which are in demand at this time. Incidentally, $3\frac{1}{2}\%$ gas oil converted into gasoline, makes the cost of the resultant gasoline $6\frac{1}{4}\%$ a gallon. $1\frac{1}{4}\%$ above today's market.

To further indicate services that the A. P. I. could do for the Industry, by bringing to the attention of its members uneconomic practices, we will take the matter of fuel oil production. Last Fall it was clearly indicated that the consumptive demand for C. fuel for 1938 would not be equal to the demand that there had been for fuel during 1937. But what did the Industry do? Did it plan to produce less C. fuel by squeezing their C. fuel harder so as to produce less? Quite the contrary, each of the larger producers proceeded to attempt to overcome sales resistance by increasing the quality of C. fuel. C. fuel cannot be

increased in quality without adding gas oil or distillate. The addition of any products to increase the quality of the fuel oil naturally increased the quantity. The net result of this procedure was to greatly increase the total fuel oil produced and greatly decreased the price of C. fuel.

EXHIBIT No. 1176

[Submitted by Mr. Travis]

ADDRESS MADE TO THE DIRECTORS OF THE AMERICAN PETROLEUM INSTITUTE,
NOVEMBER, 1938, BY MARION M. TRAVIS

Mr. Chairman, Members of the Board, and Gentlemen, I want to acknowledge my appreciation for the courtesy which affords me this opportunity to express myself. Although I am not a member of this Board, my associate, the President of the Southport Petroleum Company, is.

I wish to assure you at the outset that I am not here to suggest any buying programs, agreements or compacts.

The purpose of this address is to bring to your attention a diagnosis of the conditions which have been responsible for bringing about the present chaotic state of the Industry. I do not mean to be presumptuous in assuming the role of diagnostician but I would point out that the Independent refiner located on the Gulf Coast, engaged in a fair-sized operation does have several distinct advantages. He serves both the domestic and export market and his contacts must of necessity be broad. Most independent refiners do not have great financial reserves with which to absorb losses. By the time the end of the month has rolled around and he has paid his payroll and his crude bill, he jollywell knows whether he has lost or made money, and why.

By reason of having devoted thirty years of my life to producing, refining and marketing crude oil and its products, possessing wide contacts both at home and abroad, and having witnessed the evolution of the Industry and pioneered in every branch of it, I feel qualified to make a diagnosis.

The current condition of the Industry had its origin a year ago last Fall, at which time we approached the Fall and Winter furnace oil demand with little stocks of furnace oil on hand to meet that demand. The Industry was muddling along, basking in the warmth of its most prosperous year, and had made no provision to meet the seasonal demand for furnace oils, and then in the face of a business depression, proceeded to run to stills tremendous quantities of crude oil in order to produce the heating oil that was to be needed. Even so, they left the Number 3 and Number 4 furnace oil in the reduced crude, which was sent to the cracking units to be converted into gasoline and fuel oil, for neither of which there was a market. In the process of providing for the furnace oil demand, the most staggering inventory of gasoline in the history of the Industry was produced. The inventory position was to be presented to the world at large in its worst possible statistical light.

Foreign buyers purchased a daily average of 223,712 barrels of crude oil as computed for the first seven months of this year, and a daily average of 316,849 barrels of refined products for the same period. These buyers were not slow in converting a badly presented statistical position to their advantage.

Roughly stated, this is how they went about it: The crude oil purchasers, and incidentally the crude oil purchasers and refined oil purchasers very often belong to the same combination, told their current crude oil suppliers that in the face of our refined oil statistical position, they were going to sharply curtail their purchase of crude oil, because they anticipated being able to buy refined products for less money than they could produce these products from crude. The fact is that in most countries they cannot, because protective tariffs make it more advantageous to refine oil than to import refined products.

Nevertheless, it was a good story and it worked. American suppliers of crude oil made concessions from their previous prices which included the posted and the full tariff for gathering, transporting and loading. Having received these concessions, these foreign buyers who cannot produce even half of their requirements, because of lack of refining capacity, proceeded to use the concessions that they received as a leverage with which to break down the refined price structure. Having received concessions from the refined suppliers, they immediately went back to their crude oil suppliers for further concessions, which they had no difficulty in securing. So, back and forth from the crude oil supplier to the refined

oil supplier, these foreign buyers wended their way, never to return empty-handed.

While these things were happening to the export market, this is what happened to our domestic market: The refiners, located on the Gulf Coast, seeing to escape the spot export market, immediately invaded the Atlantic Seaboard market and broke it down to the level of the Gulf Coast market. Even California's market was invaded by Gulf Coast gasoline, seeking to escape the ruinous competition of the export market.

The destruction of the market structure was not limited merely to the Gulf Coast, Atlantic Seaboard and West Coast, not by a jugfull. Refiners located in the North Central, Central and East Texas, Shreveport, Louisiana and Arkansas areas, had been for over five years exporting at least fifty percent of their gasoline, kerosene and heating oil to the Gulf Coast for the export and coastwise markets. These refiners were paying the full posted price and transportation for their crude oil. With the breakdown of the Gulf Coast market structure, the vast quantity of refined products that heretofore had been moving to the Gulf for export or coastwise, was diverted North, Northwest, Northeast and East into every nook and cranny that offered a better realization than the Gulf Coast market.

The situation in the Standard of Indiana, Standard of Ohio and Standard of Kentucky territory, so-called, was already bad, due to the development of local oil fields in Indiana, Michigan and Illinois. Group Three refiners who depend entirely upon this territory for their outlet would have been able to work out some constructive plan that would have permitted the products from the crude oil developed in Illinois, Indiana and Michigan to have moved into this general market without destroying it, but this territory could not consume the additional products dumped into this market by the refiners from West Texas, North Texas, Central Texas, East Texas, Shreveport and Arkansas areas, products that had been formerly moving to the Gulf.

Thus was the market from one end of the United States to the other destroyed.

A careful analysis disclosed that for each dime per barrel concession that these foreign buyers received on their crude purchases, our refined market price for gasoline throughout practically the whole of the United States suffered a loss of one-half cent per gallon.

This reaction is the inevitable result of the vicious cycle that is set in motion when price concessions are made—for in the end that which we receive for our surplus becomes the market for the whole.

Incidentally some of the American companies making crude price concessions to export buyers were quite ingenious in the method they employed to disguise these concessions. While some boldly sold crude oil at so much below the full price, others would sell, for instance, a 30 gravity crude oil at the full price, but would deliver a 38 or 40 gravity crude, which naturally was equivalent to a 16¢ or 20¢ a barrel concession.

While I have not compiled the figures I believe that an offhand guess as to the extent of the losses that the Industry as a whole suffered from the point of crude realization to the independent producer, by virtue of the recent cuts in posted price for crude oil, and the average losses sustained by refineries from the realization of refined products because of continually lowered prices, would be equivalent to at least twenty cents per barrel for every barrel produced, withdrawn from storage or imported. It is obvious that at this time the losses in realization are more than twice that amount.

The daily average production of approximately 3,300,000 barrels, plus withdrawals from storage of 100,000 barrels, plus approximately 100,000 barrels of imported crude, makes a total of 3,500,000 barrels of crude oil per day. If our estimate of twenty cents per barrel is correct, it is equivalent to a loss of \$700,000 per day that the Industry suffered in the way of decreased realizations, whether it be to the producer or to the refiner.

In the final analysis, the Industry as a whole, suffered a loss that was equivalent to more than \$3.00 for every barrel of crude oil that was exported. We could easily have stored this oil for 30¢ a barrel in new steel storage, had it been necessary to send this oil to storage. But had we not withdrawn the oil from storage that we did withdraw it would not have been necessary to store more than 125,000 barrels per day even though foreign buyers refused to buy one barrel of our American crude at a price equivalent to the posted and the full transportation tariff. The point is, however, that Europe must have American oil and has in the past paid the full price, and will in the future, if required to do so.

Nor were these the only losses that the Industry suffered. By virtue of this chaotic condition, producing oil properties have considerably depreciated in

value, especially the stripper well production. This is graphically illustrated by the fact that some of the major oil companies are farming out small producing properties in Oklahoma, Kansas and parts of Texas to independent producers for an over-riding royalty.

Such petroleum reserves of the United States as are represented by stripper wells, are placed in grave danger of elimination if the present chaotic conditions continue. Neither major oil companies nor independent producers will for long continue producing property, when the cost of producing is greater than the return from the sale of oil.

In fairness to these crude oil purchasing companies who have been selling their surplus crude oil for export at below the posted and the full transportation and loading tariffs, we must recognize that the only alternative such a company has, if it does not want to make concessions is to give up some of its connections in the field and thus reduce its takings. This, no crude oil purchasing company would be willing to do.

The obvious remedy to cure this situation would be for such crude oil purchasing companies as do not sell for export, to stand by ready to purchase the surplus crude at the full price from those companies who have been forced to sell for export and make concessions. The mere announcement of the willingness of these Companies to purchase at the full price would result in the restoration of export prices to what they should be. Europe's alternative would then be to pay the full price or let us refine the crude she formerly bought and buy our refined products.

The industry suffers from ills of its own making other than the above, such for instance as has developed during the last two years in connection with the problem of producing sufficient quantities of heating oils to care for the seasonal demand. Until recently, this problem did not exist. In fact, up until two years ago, gas oil during the summer months was a drug on the market, and a major problem, and large quantities of this product would be stored awaiting the better markets of the Fall and Winter.

However, a remarkable demand for diesel gas oil manifested itself a year ago last summer. This demand is certain to be an ever increasing one. Therefore the problem of producing sufficient heating oil to care for our seasonal domestic demand is one that must be met in a much more intelligent manner than it has been so far if it is not to become a perennial threat to the industry.

We have seen that increased runs to stills during the period of seasonal demand most certainly is not the way to cope with this problem. There are only two solutions to this problem:

First: the storing of sufficient stocks during the summer months as heretofore;

Second: by changing heating oil specifications to include Number 3 and Number 4 heating oils as well as Number 2, so as to permit the production of the maximum amount of heating oils possible from every barrel of crude when needed, especially during the fall and winter months.

There is no good reason why the specifications cannot be raised so as to permit the production of these heavier gas oils in conjunction with the Number 2 oil. The modern oil burner will burn such an oil more efficiently and just as cleanly as it does purely a Number 2 oil. The adoption of specifications that would permit the production of a higher end-point heating oil would result not only in greatly curtailing runs to stills, but also in the production of less gasoline from the cracking units.

The following is a graphic illustration of this point based on actual experience.

Twenty-three gravity Miranda type crude produces approximately 50% of No. 2 heating oil and has about 20% more of 3 and 4 oil.

Actual cracking yields of gasoline from the residium after removing only the No. 2 oil is approximately 33%.

The cracking yield from the residium from which the No. 3 and 4 oil is also removed is 20%. Now for example let us assume we wanted to produce seventy barrels of No. 2 heating oil. We would then have to refine one hundred forty barrels of this crude and from the seventy barrels of residium that represents the other 50% which would be sent to the cracking units we would produce 33% of gasoline or 23 barrels.

Now if the heating oil specifications were raised to include the 3 and 4 heating oil, we could produce 70 barrels of heating oil from only 100 bbls of this crude and from the 30% residium that would then be sent to the cracker there would be produced 20% of gasoline, or six barrels. In other words the attendant gasoline production that would result in order to produce 70 bbls of heating oil which in-

cluded the 3 and 4 oil, would be 6 barrels as against 23 bbls of gasoline that is produced when 70 bbls of No. 2 heating oil only—is produced.

Another ill of our own making is the presentation of our statistical position in the worst light possible, which as pointed out heretofore, foreign buyers are not slow to take advantage of. This can readily be remedied by refusing to hand out for publication other than separate figures for each and every product and the definite location of same. Composite figures are misleading and meaningless to anyone outside of the Industry. Gas oil and fuel oil should be segregated. These products are in no way similar and do not serve the same purpose.

Gas oil and fuel oil in California can in no way affect the market on the Gulf Coast or Atlantic Seaboard, or in the interior of North Central United States and vice-versa. But, the publication of composite statistics representing the total gas oil and/or fuel oil of the whole United States has a definite bearish effect on each individual market where gas oil and/or fuel oil occurs. An example of this may be had in connection with heavy fuels. The great increase in heavy fuel oil stocks in California was due to the fact that California included its 12 to 18 gravity heavy crude oil into its Bunker C. fuel oil stocks. Publishing composite heavy fuel totals, which include this heavy crude oil, definitely hurt the fuel oil market for heavy fuels on the Gulf Coast and the Atlantic Seaboard as well as in California. To have included gas oil into this composite picture certainly did not help the gas oil price structure on the Atlantic Seaboard, Gulf Coast or in California.

Aside from the ills of our own making, as pointed out, we are the victims of the trade journals who have no stake in the Industry and are supported by the Industry. The Industry suffers losses of untold millions of dollars annually by improper, unintelligent and unsupervised methods of reporting markets.

Illustrating this point, we will quote from the November 8th issue of Platt's Oilgram. We will take the Gulf Coast quotations. Platt's insist upon making a distinction between Export and Domestic markets when no such distinction exists. If the Gulf Coast refiner was to make a distinction it would be in favor of the domestic buyer, because a contract of sale to a foreign buyer represents a greater hazard than does a contract of sale to a domestic buyer. We cannot conceive of any sound theory for selling gasoline to a foreign buyer who is a greater credit risk for less money than to a domestic buyer.

Another example of uninformed reporting is to be had in their quotation in this issue for 64/66, 375 endpoint, 68 octane export gasoline, the low of which is quoted at 4½¢ and the high at 5¼¢. In this same issue 68/70 octane, 400 endpoint domestic gasoline is quoted at 5¢ to 5¼¢. Export grade gasoline must be water-white and contain no lead. 68/70 domestic gasoline contains lead and is not water-white.

Anyone informed as to the costs of refining knows that it costs at least one cent a gallon more to produce a 68 octane, 375 endpoint gasoline meeting export distillation and specifications for the reason that there is no such gasoline as 68 octane, 375 endpoint, that can be produced direct from crude that will meet export specifications. It can only be raised to the desired octane rating by using very high-octane water-white cracked gasoline, which is a very expensive product to produce, especially because reducing the endpoint of cracked gasoline to 375 means a loss of about 20 percent of the gasoline that may be produced. Yet Platt's insist that this gasoline should be sold at ½¢ per gallon below a 68/70 octane, 400 endpoint, third grade gasoline, that has been leaded.

As another example of this Publication's determination to do things their own way, we would point out that it has been brought to the attention of this Publication time and again that there is a differential of probably ½¢ per gallon between 68/70 octane leaded gasoline and 68/70 octane water-white unleaded gasoline. Yet they refuse to publish separate quotations for water-white and leaded gasolines.

We would further point out that this Publication time and again has lowered the price for various refined products merely because of purported offerings, not on actual sales. On the other hand, when a sale is reported to this Publication at a higher price than the low quotation for the commodity reported, this Publication has taken the position that unless the sale is higher than the high quotation for the commodity, it should not alter its quotations.

The qualification for publishing a trade journal is not merely journalism. It requires expert knowledge of the commodities that are traded in, which no trade journal possesses. And, with the best intentions in the world, unless these trade journals adopt some uniform and comprehensive method of reporting, they will be more destructive to the Industry than constructive.

In conclusion, I would urge your most earnest consideration of the following four-point program which I believe would go a long way toward solving the problems that confront the Industry:

1. Definite steps must be taken to eliminate crude oil from being sold for export at less than the posted and the full transportation and loading tariff. So long as any quantity of crude oil, no matter how small, is exported at a price that represents less than the posted, the gathering and transportation and loading tariff, there can be no recovery, no matter how good our statistical position becomes, and there can be no stabilization of crude oil or refined prices, no matter how many crude oil price cuts are made. A crude oil price concession will quickly be followed by a refined oil price recession. We must remember also that this Industry is vulnerable, that we are dependent upon proration if chaos is not to preside, and unless this practice of selling crude at below the full market price ceases, proration will not hold. The independent producer has given the Industry his fullest cooperation and he has not merited the reward that he has received for this cooperation. Europe, who is dependent on our refined products and our crude must not be permitted to set its price for our crude oil. The tail must cease wagging the dog—it will do so when it learns that we are prepared if necessary to cut off the dog from its tail.

2. Definite steps must be taken to re-form the specifications of heating oil so that all of the heating oil can be removed from every barrel of crude at such times as it is necessary to produce the maximum amount of heating oil to care for seasonal demand, so that there will be no further repetitions of excessive runs to stills in order to produce the heating oil that is necessary to meet seasonal demand.

3. Definite steps should immediately be taken to re-form the method of presenting statistical information so that this information will not present our statistical position in its worst light. The first step toward this end would be to remove California crude oil that is now shown in the fuel oil statistics and place it into the crude oil column where it belongs.

4. Supervision of trade journal methods should be exercised so that the commodities will be more properly described and listed, reflecting the market on the basis of actual sales rather than on purported offerings, and if such supervision of the present trade journals cannot be had, the A. P. I. should set about securing some that will. It is high time we become emancipated from the unintelligent impractical chaotic methods that at present make it possible for brokers to manipulate our markets.

There may have been some reason for the tail wagging the dog—but there is no good reason for us to permit him being over-run by fleas.

The Industry as a whole is looking to you gentlemen for constructive leadership. The problems that confront you are not at all insurmountable. The basic conditions of the Industry are in the best shape that they have been for many years. Courageous and efficient leadership can restore this Industry to a position in the vanguard of National recovery.

Gentlemen, it is up to you.

I thank you.

EXHIBIT No. 1177

[National Petroleum News]

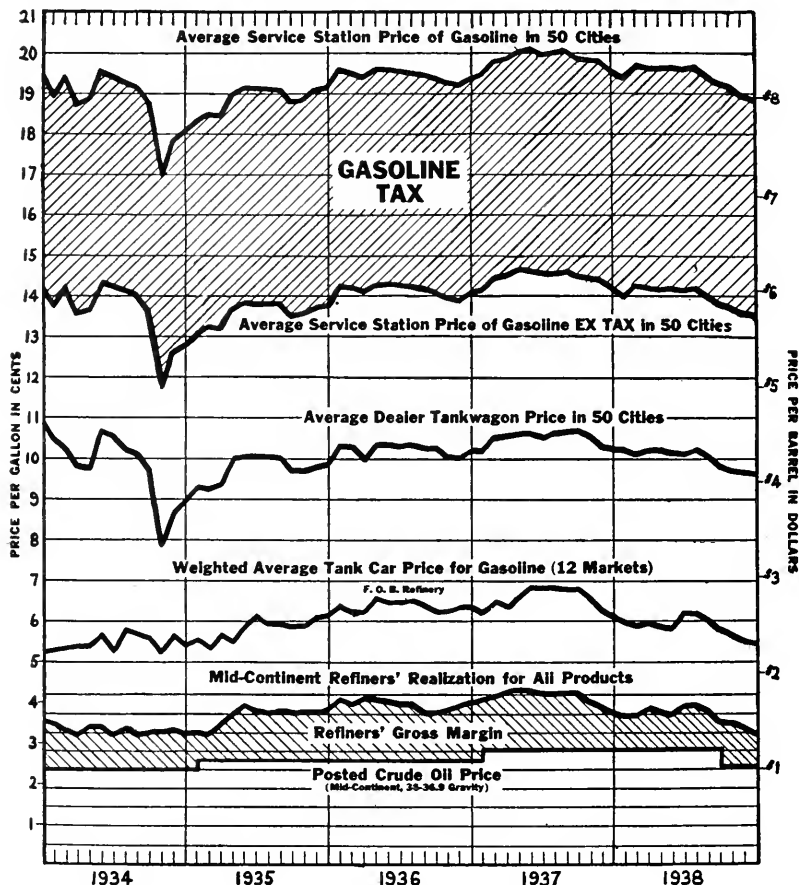
Gasoline Price Structure, from Crude to Autoist's Tank

EXHIBIT No. 1178

[Submitted by Mr. Dailey]

STATEMENT PREPARED FOR THE TEMPORARY NATIONAL ECONOMIC COMMITTEE

BY JOHN B. DAILEY, HOUSTON, TEXAS

THE CONFISCATION OF PROPERTY IN THE NAME OF CONSERVATION

I wish to call the attention of this Committee to a very extraordinary situation, in which a 20-acre fee-owned tract in a great oil field on the Gulf Coast of Texas, after having been definitely proven for production for almost 24 months, cannot be drilled as a separate unit in this great oil field and thereby the owners are having their valuable sub-surface resources confiscated.

This indicates a condition in the oil industry, and in the conservation laws and their administration, in the State of Texas, which illustrates how far we have travelled away from the foundations of this republic.

This 20-acre Pollard-Dailey tract in the Old Ocean oil field has been owned by my family for about twenty years. We filed an application about the middle of May 1938 with the Railroad Commission of Texas asking for a permit to drill a well in the center of our own property, and up to this date we have failed to get a permit from the Railroad Commission of Texas and from the lower courts of Texas. Meanwhile, the operators of this field have drilled wells around us and are drilling wells on their leaseholds as fast as they can with the operation of three drilling rigs.

My grandfather, O. H. Pollard, purchased this property in 1919, about six months before the first spacing law was put on the statute books of the State of Texas, and by inheritance it passed to my uncle and my mother.

This tract has never been subdivided, and the fee owners find themselves placed between a producing well west of the west boundary line and one east of the east boundary line, which wells, according to technical opinion I have had, are not only draining oil and gas from under our own land but are also ruining the position value of our oil land so that, to prevent our lequity from being confiscated, it is necessary that we arrange for a well to be drilled on this property.

THE HISTORY OF THE OLD OCEAN OIL FIELD

The name of this area comes from the fact that there is a swampy lake there. It has been considered a perennial prospect for oil ever since shortly after the days of the discovery of Spindletop (1901). At different times and at different places over the area, prospective wells have been drilled at intervals throughout many years.

Shortly after my grandfather purchased this property, exploratory drilling was done with considerable excitement and newspaper reports that Old Ocean was to be the next oil field near Houston. About fifteen years ago, while this excitement was on, my grandfather was stricken with a fatal illness and his last words before he died were about the oil which he felt sure was there.

However, the Trans-Continental Oil Company, which was doing the exploration work, gave it up and Old Ocean lapsed into years of inactivity. Owing to all the circumstances, we retained this property and paid taxes on it (with no income from it) throughout the years. In the summer of 1934, we leased it to Harrison & Abercrombie for \$10.00 an acre, retaining $\frac{1}{8}$ royalty interest. We did not like Form 88 lease, and we specified definite drilling provisions.

THE NEW OLD OCEAN DEVELOPMENT

In the fall of 1934, the discovery well in the Old Ocean field came in approximately one-half mile northwest of our property at an approximate depth of 8600 feet. When the drilling provisions of our lease had not been complied with for about a year after the discovery well, the lease terminated and the property came back to us.

Shortly before the time limit set for drilling expired, we received the following letter from the lease man of these operators:

R. D. MacDONALD

Real Estate—Investments

501-5 Chronicle Building, Houston, Texas

AUGUST 5, 1935.

MR. A. W. POLLARD,
Sewanee, Tenn.

DEAR MR. POLLARD: I was down at the Old Ocean country Saturday to see if we were any ways near getting a second well. Harrison & Abercrombie are down 8,661 feet on the second well and it looked about the same all the way down as the first one did, except the sand seems to be less in this second location. They were supposed to have 22 feet of oil sand where the first well was made and the information on the second location is 17 feet of oil sand.

A couple of weeks ago 4,300 feet of drill stem stuck in the hole after all the casing was on the ground and they were cleaning hole preparatory to setting casing. This made it necessary to cut out this 4,300 feet of pipe and clear out the hole. Afterwards in doing so, the hole seems to have side-tracked at about 5,700 feet so they will have to make an additional 3,000 feet of hole now. Would imagine this will delay them perhaps 30 days.

I have been working the last few months to try and get some one to drill a well on the Kalb 40-acre tract or on our land between the Kalb and your piece because the Kalb lease runs out September 6th and yours on November 1st. All of Harrison & Abercrombie geophysics point to such oil field as we have being north of the railroad tracks and close to the north line of the Breen League, so that they do not feel justified at this time in drilling a well on the Kalb 40 acres or near enough to it on your land or mine to prove it out. Harrison & Abercrombie are willing to let me transfer the Kalb 40-acre lease and 300 acres adjoining or near it to any other first class company I can secure to drill at Old Ocean.

On the strength of the work and information obtained from the Old Transcontinental operations there, I have been trying to make such a deal and finally secured one good lead with a big Oklahoma company, but they told me last week when I conferred with them at Tulsa headquarters, that they would not even consider drilling there unless I could get them as much as 500 acres.

Harrison & Abercrombie have told me that they were just going to let the Kalb 40 acre lease lapse on Sept. 6th, unless I can get them a renewal for \$10.00 per acre. I asked them what they would do with reference to your 20 acres, and they stated they would like to have an extension of time of 5 years or not less than 3 years, and agreed that they would take this at the rate of \$15.00 per acre per year in your case. I got them to say \$15.00 per acre or \$300.00 on your tract in as much as the acreage was small and the proceeds had to be divided between you and your sister.

Will you please think this over and give me your views on it, and if you decide to let them have additional time and write me you would prefer to extend for just one year at this time, I will get them to take it on that basis and send you the \$300.00. If this 20 acres belonged to me I would take the \$300.00 now for an additional year, rather than have the lease lapse as 20 acres is too small a tract to get any one else to drill such an expensive a well as these are. Of course it is not possible now to get additional acreage to go with yours and Kolb's except by getting some of the land Harrison & Abercrombie have under lease, and I believe by letting them and me work on it, you will be more likely to get action on your land or close to it then if you let this lapse out. Then of course \$300.00 bills do not grow on bushes either and another year would soon come around. It seems to be there is a certain psychology in Harrison & Abercrombie having both your lease and the Kalb with an expiration date just a year from now, which would tend to draw their interest to that part of the survey, and also just a little psychological influence in them having paid further payments on yours and the Kalb leases. I am going to recommend to Kalb to let them have an additional year at \$10.00 and I would do it if I was in his shoes, and I am making this recommendation thinking it good for the land owners rather than for the benefit of the oil companies, as Harrison & Abercrombie seem very indifferent whether they get the Kalb lease or not.

With kindest personal regards, I am

Very truly,

(Signed) R. D. MacDONALD.
R. D. MacDonald.

They offered us \$15.00 an acre for $\frac{1}{4}$ of whatever oil might be under our property but with no provision to drill. As this letter shows, apparently they did not think the property valuable and indicated that all the oil was going to be north of where we were. Here was a 20-acre tract of land which from the shooting picture was in the productive area of a deep seated dome, being a half mile from the discovery well, probably on top of the structure.

They offered \$300.00 for $\frac{1}{4}$ of the oil that might lie under the 20-acre tract, so apparently they thought they would take our oil from us "like taking it away from a couple of Mexicans." They naively reminded us as follows: "Then, of course, \$300.00 bills do not grow on bushes." While we know that, we had heard that the equivalent sometimes came out of oil wells. For example, this field was only twelve miles away from the famous old West Columbia field where a tract of land of less than 20 acres produced about twenty million barrels of oil. Near this productive tract there was a famous well which came in flowing 30,000 barrels a day and after a year was still flowing 10,000 barrels a day.

At Old Ocean, the operators have about 30 completed wells which, under production, are taking out on an average of 350 barrels or more per day per well of high gravity oil for which the market price was ranging between \$1.65 and \$1.85 per barrel. This means that the operators are producing approximately two \$300.00 bills each day per well. The operators are not finding any dollar bills on

the bushes, but they are taking out approximately \$200,000 annually from each well in this field, and we can see no reason why we cannot drill a well and have the same opportunity.

THE EFFORT TO MAKE THE LANDOWNER TURN OVER OIL PROPERTY WITHOUT PROPER
DRILLING SPECIFICATIONS

Following this early bad start in negotiations, these operators were offered several opportunities to control our property if they would agree to drill this tract, but we refused to make any deal with them without a definite drilling provision.

The development of this field went on very slowly, and up to August 1937, three years after the discovery well came in, only five completed wells were in the field. The fifth well came in just west of our property and the operators began to negotiate with us personally and through the mail.

I wish to introduce into the record the following items of correspondence which passed between me and one of the partners in the developing interests of the Old Ocean field.

E. DEGOLYER

Continental Building, Dallas, Texas

JULY 20, 1937.

Mr. JOHN B. DAILEY,
Minett Post Office, Muskoka Lakes, Ontario, Canada.

DEAR MR. DAILEY: The Pollard 20-acre tract lies about a quarter of a mile east of the Bernard River Land and Development Company No. 4 which has not yet been completed but which has had at least four sands which look as if they would be productive.

As you know, J. C. Karcher and myself, through private companies which we control, are partners with Abercrombie and Harrison in this development.

On the basis of geophysical work, the Pollard tract appears to be lower structurally than anything which has yet produced but I believe it has a fairly good chance to be productive. We have not yet found the edge of the field and while it must come to an end sometime, I hope that it continues far enough to include your tract.

As a partner in this enterprise with Harrison and Abercrombie, I hope that you will be able to lease your land to us. It is one of two 20-acre tracts which are open in our block and I think we will all profit more if the field can be operated as a unit than otherwise.

Sincerely yours,

(Signed) E. DEGOLYER.

E. DEGOLYER

Continental Building, Dallas, Texas

AUGUST 18, 1937.

Mr. JOHN B. DAILEY,
*c/o Fiduciary Trust Company,
1 Wall Street, New York, New York.*

DEAR MR. DAILEY: I feel sure that you will best understand the situation with regard to the Pollard 20 acres and will be best able to advise regarding it if you come to Houston and go into the matter personally on the ground.

The situation has not changed greatly from that set forth in my letter of July 20, except that we have completed the B. R. L. & D. No. 4 as a 300 bbl. well.

Comparisons with the Gulf Coast fields mentioned by you are not justified as this field has produced to date mostly gas and all of the oil has been of the so-called "distillate" type. This fact together with the fact that the wells are extremely deep and expensive, calls for wide spacing and to date has left the field as sort of a "problem child."

However, the best way for you to find out about it is on the ground.

I have only one copy of the field map. Operations are in the hands of Abercrombie and Harrison and I am sure they would be glad to go over the situation with you.

Sincerely yours,

(Signed) E. DEGOLYER.

EDG:JC.

[Western Union]

NEW YORK, N. Y. *August 23, 1937.*

Mr. E. DEGOLYER,
Continental Building, Dallas, Texas:

Relative your letter can't see situation warrants my trip to Houston Gaston's offered terms absurd Stop Gaston evades furnishing pertinent facts relative estimating oil recoverables only basis we have for asking petroleum engineers appraisal fair value property Stop My oil friends here willing buy at any reasonable figure all or any part your drilled and undrilled acreage holdings vicinity last well southward toward Old Ocean preferably Stop Willing pay us same price for Pollard tract as can obtain from you any part your acreage holdings outlined above Stop Please wire your best price to dispose any quantity your acreage adjacent or near to Pollard tract.

JOHN B. DAILEY.

Night Letter—Paid.

E. DEGOLYER
 Continental Building, Dallas, Texas

AUGUST 26, 1937.

Mr. JOHN B. DAILEY,
*Fiduciary Trust Company,
 1 Wall Street, New York, N. Y.*

DEAR MR. DAILEY: Referring to your wire of the 24th and letter of the 23rd: Neither I nor my partners wish to sell acreage at Old Ocean at the present time in small plots. We cannot consider the sale of the entire property, even if it were attractive otherwise, because of the excessive tax burden that would ensue.

Since I myself am an interested party I have tried to be frank about the situation at Old Ocean in my past correspondence with you without becoming argumentative.

With regard to some of the questions you raise in your letter, there is no answer. I have probably had as much experience in the appraisal of petroleum properties as any one else and I do not know what the recoverable oil per acre or even per acre-foot may be for this area, nor do I think that I can make a reasonable estimate.

The situation is a complex one and, from the standpoint of the operators, likely to be expensive for some years to come. The field is not a normal type oil field and, as I said in my previous letter, is not to be compared with fields like Friendswood.

I realize that the tract in which you are interested is small and that you may feel that it hardly warrants a trip to Houston. On the other hand, I do not see how you will ever understand your problem without getting closer to it.

I do not feel that Mr. Gaston's offer is so absurd. We have not yet produced a barrel of normal oil from this field but only the so-called "distillate." Gas ratios are high and some way will have to be found to utilize the gas. Pressures are excessive and this entails great expense. The wells are extremely deep and costly. We will probably be faced with a 40-acre spacing rule by the Railroad Commission, which is the basis for Mr. Gaston's suggestion to combine this with another 20 acres and thus make a drillable plot.

These are some of the factors which have caused me to suggest that you see conditions on the ground. You will immediately realize that we are not dealing with a Spindletop.

Very truly yours,

(Signed) E. DEGOLYER.

MINETT P. O.,
Muskoka Lakes, Ont., Canada, August 10, 1937.

HARRISON & ABERCROMBIE,
Sweeney, Brazoria County, Texas.
 (Attention Mr. Gaston.)

GENTLEMEN: Your offer for the 20 acre Pollard tract submitted to Mr. Watts is not interesting and cannot serve even as a basis for further discussion. As reported to me, your offer was \$125 per acre, payable \$50 in cash balance, in oil, their 20 acres to be pooled with another 20, one well to be drilled on the 40 acre tract from which they were to receive a royalty 1/16 of the recoverable oil.

I have written to Mr. DeColyer fully outlining our position, and I am surprised you should have submitted such an absurd proposition. From two of my friends in New York, each President of a large company whose subsidiaries have sub-

stantial production and acreage holdings in the Gulf coast fields and other fields in Texas, I have had recently almost the same identical friendly advice, viz., "Tell your Mother—

1. Do not lease the land at this time for developments are favorable to her, and shortly the leasehold will have a very substantial value.

2. If she disposes of the leasehold now, have its value appraised by a reliable consulting petroleum engineer, for it now comes within the class of proven oil land, and the price of the leasehold comprising $\frac{3}{4}$ of her equity must be based upon the estimated oil recoverable over a period of years."

I don't know anything about the oil business, and acting for my Mother in regard to this property, I intend to take the advice of my New York friends who do. I have no interest in this property other than to further if I can the objective of seeing that Mother and my Uncle receive for their leasehold comprising $\frac{3}{4}$ of the recoverable oil, a price having some relation to what competent opinion estimates to be fair value, at this or at a later stage of the Old Ocean development.

It is obvious to me that the advice given me is good, and that my Mother and her brother are justified in holding this small acreage for its future potentialities in what appears to be the center of the best section of a rapidly developing oil field. 20 acres is a small plot but the deep sand at Spindletop only covered a productive area of about 150 acres.

While I am not in favor of the leasehold $\frac{3}{4}$ being disposed of at this time, and my Mother has requested me to handle her interests in the matter, I shall not oppose the disposal of it now to you or any other responsible company provided the above requirements are complied with. I think I am safe in saying it will not be disposed of under any other conditions.

Reflecting over the situation, I find I cannot reconcile what you state about the royalty $\frac{3}{4}$ being worth only \$210 an acre, or your offer of \$125 an acre for the leasehold $\frac{3}{4}$ and the drilling proposals accompanying it, with simple arithmetic and the information concerning these various factors that I have received from sources I regard as highly reliable. Also the information I have as to the near imminent requirements of the Texas Railroad Commission as to future drilling and allowables in the Old Ocean Field is quite different from the picture outlined by you.

There is no point in my going to the expense and trouble of coming down to Houston to discuss the matter with you, as Mr. Pollard writes that you wish me to do for your proposition has not the faintest relation to fair value. I shall only come to Houston after you or some other company has made an offer having some relation to fair value. If and when that is done, to indicate our willingness to dispose of the leasehold, I will employ a consulting Petroleum Engineer to appraise the property on the basis of its estimated oil recoverables, and Mr. Pollard and I will be in Houston ready to close the deal on a reasonably fair basis. Obviously I am not willing to go to this trouble and expense in view of your offer.

On August 14th I am motoring my Mother to Cape Cod for the remainder of the summer, but about August 20th I will have to be in New York for a few days on business, and if you wish me to discuss the matter with someone connected with your interests there, you can advise me. Also you can submit any further proposal you care to make, but if you do, I'd suggest you make one that harmonizes with the facts of the Old Ocean situation.

You told my Uncle you would be very pleased if one of the big companies able to do high pressure drilling would take over our lease. If you will make me a reasonable fair offer of all or any part of 100 acres of your leases adjacent to the Pollard tract I can assure you that you will have a good neighbor drilling the tract very quickly. I am safe in saying to you that you can have much better terms than you have offered to my Mother and my Uncle.

If the Humble Oil Co. paid \$2,500 an acre for 100 acres 2 miles from a discovery well in Harris County recently, what do you suppose they would be willing or any other of the big companies be willing to pay you for 100 or more acres about 400 yards southeast of your last well?

We have no desire to try to drive a hard bargain with you or anyone else but from the start you seem to have had the idea that we would dispose of the property to you for relatively nothing.

Yours truly,

JOHN B. DAILEY.

They refused to make any agreement about drilling this property unless we would pool our 20 acres of fee ownership with 20 acres of their surrounding leaseholds which we refused to do. We made every effort to deal reasonably with them but insisted that since they had all the information concerning sand conditions,

and had admitted that our property was probably proven, we must have information which would enable competent technical opinion to fairly appraise the oil recovery per acre in each sand before we would turn the property over to them.

DeGolyer's letter of July 20, 1937, states that the well just west of us had at least four sands which looked to be productive. Although I was not an oil man, this indicated to me that here were at least four separate oil fields under our 20-acre tract.

We refused to turn over the property to them when they would not agree to drill it as an individual unit and declined to give any requested information. They were in the position of knowing the intrinsic value of the oil recoverable per acre in each sand under the tract but we had no information whatever.

I was in Canada at the time and knew nothing about the oil business but could see from this correspondence, so evasive, contradictory and misleading, that these oil operators still had the idea that they were going to take our oil away from us and make believe "the moon was made of green cheese." These letters speak for themselves without comment. After stating that the well west of us had at least four sands (which I took to mean really that it had not less than five sands) the operator stated that he hoped we would see fit to turn this 20-acre tract over to them as he thought all would profit more if the field could be operated as a "unit" rather than otherwise.

Around that statement is this whole long drawn-out controversy. It was a round-about way of saying that the field would be more profitable to the operators if it could be operated as a monopoly, for *unit operation* means really monopolized operation in an oil field where everybody but the monopolizing interest gets crucified. As monopoly is an unpopular word in oil circles, "unit" is the customary term. DeGolyer was saying that if this 20-acre tract was operated as a separate unit it would prevent the field from being operated as a monopoly. Although I had been away from Texas for over twenty years and only had the vaguest idea of conditions in the Texas oil fields, I did not know that in Spindletop it took over twenty years to locate the second sand. Here was an admission that in three years of exploration they had located at least four sands in Old Ocean.

JUST A PROBLEM CHILD

As soon as I asked him for some information the hedging began. DeGolyer, who is an eminent authority in the oil business, on August 18, 1937, wrote that Old Ocean could not be compared with other fields on the Gulf Coast because it had produced up to date mostly gas and all of the oil had been of the so-called "distillate" type. He started to wring his hands over such a poor prospect and even called the field a "problem child."

On August 10, I wrote to these operators, and stated my position very clearly (which incidentally has not been changed up to this time) namely, that we did not care for their offer to drill one well to one sand on our property and give us 1/16 of the oil in that one sand and in addition to give us a bonus of \$125.00 an acre payable \$50.00 an acre in cash and the balance in our own oil. I stated that their offer was not even a basis for negotiation. Their proposal really meant they would drill one well to one sand and that possibly was the only well which might go on our property.

While no wells would be drilled to the other sands on our property, they could place wells around us and drain from all the separate sands under our property but we would only get 1/16 of the oil out of one sand. These operators were going to allow us 1/80 of our own oil and they would take 79/80 of our oil for which they would give us \$125.00 an acre—part of it in cash and part of it in our own oil.

THE OIL INDUSTRY AND THE FORM 88 LEASE

I did not know anything about the oil business, but I remembered that while the whole industry was built up on the Form 88 lease whereby the land owner, who owns the oil, was given no more than 1/8 of his own oil, the oil companies did pay something for 7/8 of the oil they took out of each sand. The operators were calmly offering to take 79/80 of our oil, for which they would pay us \$2500, \$1000 cash and the balance out of our own oil. I did not care for the fractional division of our oil which these oil operators suggested which was far worse than the division compelled by Form 88 lease.

Mr. Thurman Arnold, in his book on "The Folklore of Capitalism," strikes at the outmoded "Form 88" lease with its 1/8 to owners and 7/8 to the operator from another viewpoint. Having stated the proposition that the U. S. Government

cannot capitalize its own assets, like private financial organizations, he says (pp. 314-315):

So deep-seated is this notion, that the Government can only with the greatest difficulty raise money on assets which everyone admits it owns. For example, the Government owned the oil under the Salt Creek field in Wyoming. It was compelled, however, in following the ideology of the time, to "lease" the right to extract oil to private companies, reserving a small royalty. This was in effect a present of untold millions of dollars to private oil companies. The leases acquired from the Government became worth fabulous sums. The oil was wasted in fantastic ways. Nevertheless, the Government was not permitted to operate its own properties because of the certainty men felt that government is wasteful. (Incidentally, states could not tax these highly valuable oil leases within their boundaries because that would have been in effect "taxing" the Federal Government).

I went to New York and sent this oil operator a wire stating that if they thought the prospects were so bleak I had somebody who would take over their acreage holdings near ours. Then he writes back that they could not consider selling any of their holdings because of the excessive tax burden which would ensue. Various oil people have commented on this correspondence as one of the most extraordinary things they have ever seen. He stated first, that the field has at least four sands; then he implied it was no good, producing nothing but gas and distillate; wringing his hands over it as a problem child, he said it was not a normal type oil field; and, finally he came back and blandly stated they couldn't sell this problem child because of the excessive tax burden which would ensue.

I call your attention to DeGolyer's letter August 26, specifically next to the last paragraph:

I do not feel that Mr. Gaston's offer is so absurd. We have not yet produced a barrel of normal oil from this field but only the so-called "distillate." Gas ratios are high and some way will have to be found to utilize the gas. Pressures are excessive and this entails a great expense. The wells are extremely deep and costly. We will probably be faced with a 40-acre spacing rule by the Railroad Commission, which is the basis for Mr. Gaston's suggestion to combine this with another 20 acres and thus make a drillable plot.

I inquired around New York, and the information I got was that a 40-acre spacing rule on the Gulf Coast of Texas was an unheard of thing. I found no 40-acre spacing rule in effect in Old Ocean; in fact, no spacing rule at all. Later, however, these very operators themselves asked for it on October 28, 1937, and it was granted to them in November 1937. This eminent oil authority was a mind reader, for in August he was able to read the mind of the Railroad Commission as it later happened in November.

I could not understand what he meant by "drillable plot" because I vaguely remembered that in fields on the Gulf Coast like Spindletop, Batson, Humble and Goose Creek they used to drill wells so close together you could hardly walk between the derricks and a drillable plot used to be about $\frac{1}{16}$ of an acre. I generally understood that such wasteful practices had been ended but in the East Texas field there was a ruling that they could drill on $\frac{1}{10}$ of an acre, and here was the idea put to me that a drillable plot was going to be 1 well to 40 acres, which unfortunately the Railroad Commission was going to force on them.

TENDERFOOTING IN HOUSTON OIL CIRCLES

I couldn't make any sense out of this business, other than having the general impression that it was the greatest attempted piece of chiseling that I had ever seen.

Through friends in two New York banking houses I did get an introduction to two important oil companies, in New York and Houston.

The New York office of one company looked it up and stated that from their records and my correspondence, apparently they had struck something of great importance in Old Ocean, and while as a matter of *policy* they did not usually drill on small tracts, they might become interested to drill on this tract subject to further investigation. I pointed out to this company the unfair offer, and they agreed with me that proven oil land commands an appropriate bonus and the regular $\frac{1}{8}$ royalty or larger royalty.

I eventually arrived in Houston the first week of September 1937. On the second day I went to this oil field, which appeared a jungle and a swamp to me.

I had a hard time locating the well which was just west of our property, because the derrick had been taken down and there was only a Christmas tree, which is the name given to the set of valves on a producing well. Wandering through the swamp, I ran across a railroad section man who lived close to our property in the section house, and he showed me the Bernard No. 4 well of Harrison and Abercrombie. I casually inquired if it was any good, and I will try to detail his comments because it makes a good story. He said, "Good! Why, I was out here when this well came in, and old Jim Abercrombie came over and slapped me on the back and said, 'Boy, from now on every well that goes down is a million dollar well! Why, in this well we passed through the old black stuff at 5,000 feet, and we are coming back and get that later. What we want is this pretty stuff. This is the prettiest oil I ever saw! Why, there's more than 1,000 feet of oil sand, and we were still in oil sand when we quit drilling.' Shucks, The Texas Company offered fifteen million dollars for my holdings some time ago and I told them to keep that small change."

I pricked up my ears at this because this didn't seem like a "problem child" to me—a thousand feet of oil sand, shallow production at 5,000 feet, every well a million dollar well!

I called at the Houston office of the oil company with whom I had begun negotiations in New York. They had not heard from Tulsa headquarters so could not discuss further any deal, but were very courteous to me, and in return I gave them the information I had gotten out in the field. Shortly after, they advised that they could not drill the property as a matter of policy.

I also presented my letter of introduction to the other oil company, and they were similarly courteous to me, giving as their frank opinion that while little was known about this field, as information had been so closely withheld, they felt that recent indications from the well just west of us gave great promise and they felt sure that our property was productive. They said that while as a matter of policy they themselves would rather not drill on small tracts, it might be of interest to some small company. They very courteously called a number of people telling them about this open tract and through them I met an intermediary "who often worked out deals," but after showing keen interest for some reason suddenly back out.

DEALING WITH MISREPRESENTATION

About that time the president of the second oil company I approached stated that he felt that they might be interested in drilling the property, but after some discussion they decided not to do so. He told me he thought it was a valuable piece of property and I should not let it go until I tried to study the whole situation carefully.

Then the intermediary reopened negotiations with me, which went on back and forth over several weeks. Meanwhile Harrison & Abercrombie had gotten wind of these negotiations and telephoned me. After I had one or two oil conversations with them, a notice came out that there was to be a hearing before the Texas Railroad Commission on a spacing rule in the Old Ocean field.

On September 17, 1937, the Ira Rinehart Oil Report came out with a reference to the Old Ocean field which caused considerable comment in oil circles and which seemed to corroborate the information which I had received. It read in part as follows:

OLD OCEAN IN HASTINGS CLASS

BECAUSE information on the Old Ocean field has been rather closely held by the operators and joint owners of leases and fee lands, little had been said about this field.

HOWEVER, it is learned authentically that the field can be placed in the same category with Hastings as a mammoth reserve for oil. This is done a bit reluctantly without confirmed information and also with so few wells drilled, but nonetheless, circumstances seem to warrant it.

THE latest test drilled, which is one mile east of former production the (sic) C. Breen survey, according to information regarded as reliable, topped sand carrying oil and gas at 9,840', and from that point to 10,760', its present total depth cored sand and shale ALL THE WAY THROUGH OIL AND GAS. There are no thick solid sections but apparently the broken section is all a part of the same reservoir and not separated by impervious shales. With such a section, even if it is only 30% sand, would mean a reserve to be classed with the Coast's foremost.

At present, reserves on the Gulf Coast are classed in the order named:—Hastings, Anahuac, and Flour Bluff.

HARRISON & ABERCROMBIE #1 Larson, the test which has cored this sand, is now testing near the bottom of this section. It has set pipe to bottom and has perforated at 10,634-48' in a solid section of sand and is running screen and tubing.

ATLATL Royalty has a joint ownership in a number of leases, while E. DeGolyer jointly owns minerals with Harrison & Abercrombie in a great deal of the acreage.

Shortly after I had arrived in Houston, I retained one of the most important law firms that was there, for while apparently there were no legal questions involved about the property, I had to have competent opinion and, sensing the situation, wanted to have some one I could absolutely trust. They assured me after looking into the situation there was no conflict of interests which often arises in the oil business through so many interests passing through a very large law firm. They felt the property was very valuable indeed from all the information I gave them.

During this time I had several interviews with these oil operators and they were not any more satisfactory than their correspondence. It was just further evasion and falsity. For example, their Mr. Gaston told me in the office that the well west of us was the poorest well they had and asked me to blow through a piece of rock that he called "oil sand" which I declined to do, feeling that a lot of people must have blown through that rock, for what reason I did not know.

My lawyer and I made a visit to the field and met the young fellow in charge of the field, with whom I was very favorably impressed. He told me they would certainly hate to see anybody else go in and drill on that 20-acre tract. We went around and visited the various wells, and he did not try to give me any of this false information, for I am sure he sensed that I had gotten a lot of the real information.

We finally visited the well just west of us, and I casually commented, "I suppose this is the poorest well you have got."

He said, "What! This is the best one."

"Well," I commented, "That's very strange. Mr. Gaston told me it was the poorest one."

"That's nonsense!" he said.

My lawyer was highly amused because they had rather "gotten their dates mixed." In town, they said it was the poorest well, and out there in the field they said it was the best one.

I asked the man point blank, "Now, is not this the greatest combined oil and gas reserve in the world?"

He looked at me in a surprised fashion and said, "Yes, it is the greatest combined oil and gas reserve in the world."

I went on, "I understand it has got the greatest amount of sand ever found on the Gulf Coast, over a thousand feet, and if so it should be as great as Kettleman Hills or Hastings or Spindletop."

He said, "Why, it's going to be far greater."

The frankness of this man was the only pleasant impression I ever had of these oil operators. He did not try to deceive me. In the presence of my lawyer, I asked him, "Well, now, this well that is just west of our property—it has so much sand—what do you suppose a well like this would make if turned loose? Do you suppose it would make 50,000 barrels or 75,000 barrels a day?"

He said, "Well, of course, I don't know whether it would make that much or not, but it would certainly make plenty of oil."

This statement was interesting to me, because the operators had written that the field had produced nothing but gas and distillate and no normal oil, "distillate," of course, being more or less, as I understand it, a condensation of the gas as it comes up and cools. Here was a statement from the man in charge of the field operations that the Bernard No. 4 well would make *plenty of oil*. This was an indication that Old Ocean was an oil field and not a gas field.

THE TIMID SHADOWS BEHIND THE INTERMEDIARY

The negotiations with the shadows through the intermediary were getting very unsatisfactory. Finally, in the presence of my attorney, he said that they had definitely decided they must back out, and that although they had realized the investment merit of drilling on this property, as a matter of *policy* they felt they could not afford to do so. Pressure had come in from somewhere. He began talking to me about the "ethics" of the oil business, which irritated me very much. Personally, I never heard of any ethics in the production end of the oil business other than the ethics that prevail among pirates quarreling over the loot.

THE STRADDLING LEGAL SIR GALAHADS OF MAJOR INTERESTS

I could see that I was being given the great run-around, and I decided to file for drilling permits before the hearing was held on the spacing rule. I asked my attorneys to file for four drilling permits for wells to be located in the four corners of this 20-acre tract.

One of the partners of this law firm began to look like he was sitting on a hot seat and hemmed and hawed about they could not afford to file for four drilling permits. Finally, I asked him to file for one permit, and then he said no, they were sorry they couldn't fill out a drilling permit.

I was dumbfounded. Here one of the nationally known law firms in Houston who had undertaken to be my attorneys in what they said was a most important piece of oil property, and I assumed that they were my attorneys in everything that that implied—and here they would not even fill out a drilling permit for me, the most simple little thing I could have done myself if I had been a little more familiar with the oil business.

My uncle came to town that day and stated that one of the partners of my law firm, an old friend of his, said he was afraid there was a conflict, and they would have to step out.

Immediately next day, I called up another partner of the firm who was handling things for me and told him of my uncle's conversation. He said yes, that he was afraid there was a conflict with *major interests* and that they would have to withdraw for it would lose them important business if they continued to represent me. He recommended another law firm who he said had good political affiliations and did not mind fighting *major interests*.

I began to suspect that something was wrong early in regard to my relations with this law firm. First, they were sure that there was no conflict, they went into it very carefully. One partner whom I had retained had impressed me very much. He stated that DeGolyer had come into the law firm and complained about them representing me. He told me that as far as he knew this oil man had never given the firm a nickle's worth of his business, that while he had some dealings with another partner in some royalties in another place, he didn't personally propose to have him come in and tell the law firm who they were going to represent. This was an indication of the first attempt of the oil interests to deprive me of the legal services of the law firm whom I had retained. I could only assume that where they had failed at first through another channel they had later succeeded.

SPACING RULE HEARING ON THE OLD OCEAN OIL FIELD AND THE RIDICULOUS APPLICATION OF FIRE HAZARD PRINCIPLES IN A SWAMP

My law firm stepped out about one week before the date of the spacing rule hearing. It was too late for me to do anything about another law firm. My uncle and I merely appeared at the spacing rule hearing on October 28 to go on the record as opposed to it, and I submit as evidence in this record a transcript of the space ruling hearing on the Old Ocean oil field held in Austin, Texas, October 28, 1937, before Col. Ernest O. Thompson, Railroad Commissioner.

I call your attention to the flimsy character of the evidence presented in support of the largest spacing rule ever granted in an oil field on the Gulf Coast of Texas.

The Old Ocean oil field is in Brazoria County, Texas. In the same county there are a number of other oil fields with spacing rules of no larger than 10 acres. Three of the great fields in Brazoria County are:

(1) *Hastings*.—This field has a spacing rule of one well to 10 acres, but since there are two sands in the field over a large part of the Hastings dome, there are really two wells on the 10-acre plots, because there is a well to each of the two sands.

(2) *West Columbia*.—In the new deep sand which has just recently been discovered, and which has made a new field after the depletion of the old shallower sand, there is no spacing rule at all, and these new deep wells are being drilled as close together as the operators please. In fact, on one 15-acre tract five new wells have been completed within recent months.

(3) *Old Ocean*.—The operators of this field got a spacing rule order of one well to 40 acres on the flimsy plea of fire hazard. Apparently there is no fire hazard in the Hastings or in the West Columbia fields, but only fire hazard in the Old Ocean. How very strange!

Apparently, there is no fire hazard in the East Texas field, covering several counties, which is composed of about 25,000 oil wells, where the spacing rule is

one well to 10 acres, but where as a matter of fact wells are so close together in places that you can hardly walk between the derricks. Wells are drilled on $\frac{1}{4}$ of an acre.

BOILED DOWN, WHAT IS THE RECORD?

Boiled down, what was the evidence that the operators presented before Col. Thompson of the Railroad Commission? First, the operators presented a petroleum engineer, hired by them and paid by them, who described in minute detail how any first-class drilling contractor would drill an oil well 10,000 feet deep. As this testimony will show, in the different sands perforated between 9,800 and 10,600 feet, the pressures in different wells range between 2,850 and 3,750 pounds, which I am informed is perfectly normal for such depths. You will note that this testimony does not state that the pressure in the 8,600 foot sand is around 1,500 pounds. In fact, this shallow sand is not mentioned at all. There is nothing to the evidence of this engineer other than a detailed description of the mechanical methods used by first-class drilling contractors who drill wells as deep as 10,000 feet in various places in California, Texas and Louisiana.

Just a few miles west of the Old Ocean field, across the line in Matagoro County in the Bay City field, it's just as deep as Old Ocean less about 300 or 400 feet. The pressures are approximately the same. The drilling time is about the same. They have no 40-acre spacing rule in the Bay City field and only recently they have just asked for a 20-acre spacing rule.

I venture to say that never again will a 40-acre spacing rule be granted on a salt dome field in South Texas, for the story of Old Ocean indicates very clearly the abuses which will arise from these unduly large spacing rules and shows why Judge Graves, when a member of the Texas legislature, worked very hard to get a uniform 10-acre spacing rule in the State of Texas.

I call your attention to the testimony of the petroleum engineer of the operators relative to the geological formations. He gives no information whatsoever about the amount of the oil sands, the permeability and porosity of the oil and gas bearing formations, how many wells are required to efficiently drain acreage in the different sections, the gas oil ratio, or the different gravities of the oil produced from the different sections. This is information of a highly pertinent nature and is customarily given.

I call your attention to this rather vague testimony about the famous Harrison-Abercrombie crater in the Conroe field which ran from 5,000 to 10,000 barrels a day for almost a year. Anybody in Houston can tell you about it but I marvel at the audacity of these operators for mentioning it as a sort of misfortune. That well pinched down every other well in the Conroe field. I think many people in the oil business in the Conroe field would relish telling that story.

There is included in the first thirty pages in the Railroad Commission transcript the built-up technical testimony of the engineer of the operators. I wish I had known then what I know now and had appeared at that hearing with a lawyer and a petroleum engineer, for I should like to have had in the record the cross-examination that I should have had, even though it probably would not have prevented these operators from getting a 40-acre spacing rule. They got a big fraction of the whole daily allowable of the Conroe field from one well for almost a year. They appear to know how to get what they want.

Now examine the affidavit signed by some small land owners, which you might condense into saying that they testified that they were afraid for their homes and their lives and nervous systems if wells were drilled closer than one to 40 acres. Also note the testimony of the other technical expert about the terrible blow-outs in the West Columbia field and how he waded through oil and drill stem was flying all over the field and knocking down derricks, and he was dragging men off the derrick floors. That is a wonderful picture of terrific destruction, and it's worse than a barrage of high explosive shells, and then notice his naive comment, "I got afraid of it and walked off."

When I asked to introduce into the record and to read the technical opinion of Mr. E. DeGolyer, one of the well known petroleum engineers and geologists of the world who was one of the developing partners of the Old Ocean field, Col. Thompson objected to the introduction of his signed testimony.

Very obviously, spacing rules are for the purpose of reducing drilling costs. From an oil operator's standpoint that is quite an understandable thing. Spacing rule orders are always a controversial subject, so I have been given to understand, but there is a point where reason ends and nonsense begins.

CONFISCATION—DIRECT OR INDIRECT

There has been a great deal of evidence introduced one time or another in the past that anything larger than a 10-acre spacing rule will not adequately drain the ordinary Gulf Coast oil formation. This depends on the characteristics of the formations and is a matter for technical disagreement. However, unduly large spacing rules are primarily a sleek indirect method of confiscating the equity of land owners in their own oil and placing small operators at a disadvantage with big ones. I believe it is a principle of law that no one can confiscate the property of another any more in an indirect way than he can do so in a direct way. These unduly large spacing rules are monopolistic practices which have grown up through political control by great concentrations of economic power in few hands in the oil industry. I wish to illustrate this by this 40-acre spacing rule in the Old Ocean field in the following events, as it has affected our position in my effort to protect our equity in the field.

DEVELOPMENTS FOLLOWING THE 40-ACRE SPACING RULE IN THE OLD OCEAN OIL FIELD

Here was an arbitrary oil field order put into effect by the Railroad Commission of Texas, actually written by the single operators of the Old Ocean field, making it illegal for us to drill a well on our own 20-acre property on a salt dome field in South Texas because the operators had stated that on account of fire hazard and for the protection of the nervous systems of the owners of small tracts in the Old Ocean field no well should be drilled unless it was drilled in the center of a tract exactly square composed of a total of 40 acres.

The order reads as follows:

RAILROAD COMMISSION OF TEXAS

OIL AND GAS DIVISION

Oil and Gas Docket No. 128
#3-168

In re: Conservation and Prevention of
Waste of Crude Petroleum, Oil and
Natural Gas in The Gulf Coast
District of Texas

SPECIAL ORDER ADOPTING FIELD RULES FOR THE OLD OCEAN FIELD, BRAZORIA COUNTY, TEXAS

WHEREAS, After due notice, a hearing was held in the hearing room of the Railroad Commission of Texas, in the State Capitol Building, in Austin, Texas, on October 28, 1937, for the purpose of hearing testimony from all interested persons as to whether or not certain rules and regulations were necessary to promote conservation and prevent waste for the Old Ocean Field in Brazoria County, Texas, and

IT APPEARING To the Commission from the evidence submitted in said Cause that "waste" as defined in Article 6014, Revised Civil Statutes, as amended, will result in the Old Ocean Field in Brazoria County, Texas, unless rules, regulations, and orders are adopted to prevent the same, and

IT FURTHER APPEARING That it is the duty of the Railroad Commission of Texas to prevent such waste as heretofore defined, and that the enforcement of the rules, regulations, and orders herein adopted will prevent waste of crude oil and natural gas as defined by law, and that an emergency exists requiring the immediate adoption of rules to govern said field:

THEREFORE, IT IS ORDERED By the Railroad Commission of Texas, that in addition to the general rules and regulations governing said field, the following special rules and regulations be and the same are hereby adopted, effective as of the date hereof:

Rule 1

Spacing of Wells.—No well for oil or gas shall hereafter be drilled nearer than thirteen hundred and twenty (1,320) feet to any other completed or drilling well on the same or adjoining tract or farm, and no well shall be drilled nearer than six hundred and sixty (660) feet to any property line, lease line, or subdivision line; provided that the Commission, in order to prevent waste or to prevent the confiscation of property, will grant exceptions to permit drilling within shorter distances than above prescribed whenever the Commission shall determine that such exceptions are necessary either to prevent waste or to prevent

confiscation of property. When exceptions to such rules are desired application therefor shall be filed with the Commission fully stating the facts, which application shall be accompanied by a plat drawn to the scale of one inch equal line four hundred (400) feet, accurately showing to scale the property on which permit is sought to drill a well under an exception to this rule, and accurately showing to scale all other completed drilling and permitted wells on said property, and accurately showing to scale all adjacent surrounding properties and wells. Such application shall be verified by some person acquainted with the facts, stating that all facts stated therein are within the knowledge of the affiant true, and that the accompanying plat is accurately drawn to scale and correctly reflects all pertinent and required data. Such exceptions shall be granted only after at least ten (10) days' notice to all adjacent lessees affected thereby have been given, and after public hearing at which all interested parties may be heard, and after the Commission has determined that an exception to such rule is necessary either to prevent waste or to protect the property belonging to the applicant from confiscation. In applying this rule the general order of the Commission with relation to subdivision of properties shall be observed.

Rule 2

Casing Program.—The casing program of all wells hereafter drilled in said field shall include at least three (3) strings of pipe set in accordance with the following program:

(a) New pipe with a mill test of twelve hundred (1,200) pounds per square inch shall be set and cemented at a point not higher than fourteen hundred (1,400) feet below the surface. Sufficient cement shall be used to fill the annular space back of the pipe to the surface of the ground. Cementing shall be by the pump and plug method. Cement shall be allowed to stand a minimum of twenty-four (24) hours under pressure, and a total of forty-eight (48) hours before drilling plug or initiating tests. Casing shall be tested by pump pressure in the following manner: The mud-laden fluid in the hole shall be replaced by clear water, and pump pressure of at least fifteen hundred (1,500) pounds per square inch applied. If at the end of thirty (30) minutes pressure shows a drop of two hundred (200) pounds or more, the casing shall be condemned. After the corrective operation the casing shall again be tested in the same manner.

(b) An intermediate string of casing shall be set at a depth of not less than sixty-five hundred (6500) feet. This string shall consist of new or reconditioned casing that has been tested to twenty-one hundred (2100) pounds per square inch and shall be cemented with not less than two hundred and fifty (250) sacks of cement. After cementing, and before drilling plug, casing shall be tested by pump pressure in the following manner: The mud-laden fluid in the hole shall be replaced by clear water and pump pressure of at least fifteen hundred (1500) pounds per square inch applied. If at the end of thirty (30) minutes pressure shows a drop of two hundred (200) pounds or more, the casing shall be condemned. After the corrective operation the casing shall again be tested in the same manner.

(c) The producing oil string shall be new casing that has been tested to twenty-six hundred (2600) pounds per square inch. A minimum of four hundred (400) sacks of cement shall be used. Cement shall be allowed to stand a minimum of twenty-four (24) hours under pressure, and a total of seventy-two (72) hours before drilling plug or initiating tests. After cementing and before testing all drilling-in connections shall be installed, and casing and connections shall be tested in the following manner: The mud-laden fluid in the hole shall be replaced by clear water and pump pressure of at least four thousand (4000) pounds per square inch applied. If at the end of thirty (30) minutes pressure shows a drop of two hundred and fifty (250) pounds or more, the casing shall be condemned. After the corrective operation the casing shall again be tested in the same manner.

Rule 3

Blow-out Preventer.—A blow-out preventer, control head and other connections for keeping the well under control at all times shall be installed as soon as casing is set. Blow-out preventers shall be of dual control or of such type of construction and operation as to satisfy any test which may be required by the Commission. All blow-out preventer equipment shall have been tested under hydraulic test pressure not less than twice the test pressure of the string of pipe on which it is installed. Blow-out preventer shall be tested at least once every eight (8) hours; all control equipment shall be in good working condition and order at all times.

Rule 4

When coming out of the hole with the drill pipe, drilling fluid shall be circulated until equalized and a fill-up line shall be turned into the casing to insure a full load of fluid on the bottom of the hole at all times.

Rule 5

When drilling below the intermediate string of casing, a valve, stop-cock or back pressure valve of six thousand (6000) pound test shall be installed above the Kelly.

Rule 6

All wells shall be equipped with bradenhead with a test pressure of not less than six thousand (6000) pounds per square inch. Bradenheads shall not be welded, and as soon as installed the same shall be equipped with the proper pipe connections and valves accessible at the surface. Whenever pressure develops between any two (2) strings of casing the Agent of the Commission shall be notified immediately. No cement may be pumped between any two (2) strings of pipe at the top of the hole except after permission has been granted by the Commission's Agent in charge of the District in which said field is located.

Rule 7

Christmas-trees and all other fittings and connections on the producing string and tubing shall be made up of ten thousand (10,000) pound test, flange joint valves and fittings, and the Christmas-tree hook-up shall be tested after fabrication and assembly under ten thousand (10,000) pounds per square inch hydraulic pressure.

Rule 8

All flowing wells shall be equipped with and produced through tubings of not more than two and one-half (2½) inches in size. Bottom of tubing shall not be higher than the top of the producing sand.

Rule 9

Each flowing well must be produced through an oil and gas separator in good working order. Sufficient tankage shall be provided on each lease to permit the proper taking of the allowable production. Lease or working tanks shall be so operated as to permit proper gauging.

Rule 10

All wells shall be equipped with adequate chokes, or beans, to properly control the flow thereof.

Rule 11

Each well shall be cleaned into a pit not less than forty (40) feet from the derrick floor and one hundred and fifty (150) feet from any fire hazard.

Rule 12

All wells producing two per cent (2%) or more salt water must be reported by their owner or operator to the Commission's Agent in Houston.

Rule 13

No boiler or electric lighting generator shall be placed or remain nearer than one hundred and fifty (150) feet to any producing well or oil tank.

Rule 14

All swabbing and/or bailing operations shall be completed in the daylight hours before sunset. Drill-stem tests shall likewise be made during the daylight hours.

Rule 15

All permanent oil tanks, or battery of tanks, must be surrounded by a dyke or fire wall with a capacity of at least one and one-half (1½) times that of the capacity of the tank or battery of tanks.

Rule 16

No well shall be brought into production without a written permit from an authorized agent of the Commission showing that the well has been properly completed and equipped. If inspection is not made within twenty-four (24) hours after written notice is given said Agent, written permit shall be waived. Pipe-line certificate shall be withheld until well is completed in accordance with the Railroad Commission's rules.

Rule 17

Any rubbish or debris that might constitute a fire hazard shall be removed a distance of at least one hundred and fifty (150) feet from the vicinity of wells, tanks and pump stations. All waste shall be burned or disposed of in such manner as to avoid creating a fire hazard or polluting streams of fresh water strata.

All conservation rules of the Commission heretofore promulgated to govern statewide oil and gas operation which have not expired by their terms and which are applicable to the Old Ocean Field, shall be enforceable unless in conflict herewith.

IT IS FURTHER ORDERED That this Cause be held open on the Docket for such further orders as may be necessary and supported by evidence of record in above Cause.

[SEAL]

RAILROAD COMMISSION OF TEXAS,
C. V. TERRELL, *Chairman*,
LON A. SMITH,
ERNEST O. THOMPSON, *Commissioners*.

Attest:

PAUL S. LEEPER, *Acting Secretary*.

At the same time in the same county in the West Columbia field, about twelve miles northeast of our property, the operators there were drilling deep wells as close together as they pleased and one operator told me he drilled three wells on a one-acre tract in 1938. In the Hastings field they were drilling two wells on a 10-acre plots.

Of course, during these weeks of effort, walking around trying to interest various people in this property, that 40-acre spacing rule with the political power that was behind it seemed to cast a damper on the prospects of our getting a well drilled on our land.

Almost every oil authority I talked with in Houston said, "Yes, surely, barring a miracle, the oil recovery is very large." Many smaller operators manifested great interest and then all of a sudden backed away like they had seen some great spectre threatening them. Meanwhile, the operators, who had only had five completed wells when I arrived in Houston were busily engaged running three drilling rigs completing wells which on the average gave them roughly \$200,000 worth of oil a year from each well.

To illustrate this situation, I got in touch with one of the most important drilling contractors in this country. He had known about the property, for one of the major oil companies discussed the matter of drilling with him. From Tulsa, he made a long distance telephone call to me, manifested interest, and came down especially to see me. He seemed full of enthusiasm to work out a deal quickly and immediately made a definite proposition subject to a little further checking up. He said that owing to the circumstances, we would probably have to file for the permit and get it because as fee owners we would have the best chance for a drilling permit as an exception to the 40-acre spacing rule. The next day, however, he suddenly backed away, volunteering the information that no one had put any pressure on him. I approached about a dozen deep well drilling contractors, who work for the major oil companies mainly and all but two of them had one excuse or another to not give me a bid. The two who bid submitted figures greatly in excess of the normal costs of drilling.

I canvassed the majority of the major companies of Houston whom I understood as a matter of policy would not care to interfere with a dominating interest in an oil field. Also, I met a majority of smaller but responsible oil interests, and in general the situation was of great interest and then suddenly backing away in embarrassment. Also, various so-called oil men representing mysterious interests that they did not disclose to me, in many cases suggested working out a deal, until I felt that many of these were emissaries sent around by the operators to see if in one way or another they could not get this property under their control. Many people indicated interest and suddenly backed away. Some frankly stated

to me that they were afraid to make an investment such as one of these deep wells required, owing to the great political influence of the operators of the Old Ocean field with the Railroad Commission. They pointed out that the gas ratio was very high and that while the operators got away with it they were afraid that the Railroad Commission would not allow them to produce oil with such a high gas ratio in the same way the operators of the Old Ocean field did. They apparently feared the operators and whatever group of majors might be behind them, and they feared the Railroad Commission.

ANOTHER LAW FIRM

I went to another law firm and told one partner the story and asked him to represent me. This prominent oil lawyer said he could see no reason, even though he represented important interests, why he couldn't represent a land owner who owned his own land in an oil field. There were no complicated legal questions involved. The equity was clear and he didn't seem to fear any major interests. It appeared that if I could get a permit from the Railroad Commission under Rule 37, we would be "in a better position to get something done." Twenty acres was not an inconsiderable holding in a good field, and while the wells were deep, the sand body was very great and the ultimate recovery made the drilling cost relatively trifling and the rate of return on the drilling cost was not to be equalled by any other field in the State of Texas.

WALL STREET ANGLES

During the first week in April 1938, I went to New York with the idea of presenting this situation from an investment angle to various banking houses in Wall Street. I had an entree into a good many places, and in banking houses where I did not know anybody some friends of mine did. Here I found somewhat of the same situation as existed in Houston. There was great interest, promises to consult important oil factors in New York, but when I would return there was a backing away and I got the general advice to go back and pool this 20 acres with Harrison & Abercrombie. Some oil people in Houston were glowingly predicting that orderly prorated production in Old Ocean would last for 100 years. It seemed to me that all that my situation required was an investment of roughly \$100,000 for drilling a well, and the rate of return would be 200% the first year, and after that it would last for many years. It seemed to me a pretty good gold mine. Some of these banking houses seemed to think so similarly.

I had one rather amusing experience with one of the banking houses of New York whom I did not know personally. I presented the situation as I believed it to be, and they wanted to check up with some major oil companies and would let me know the next day. Well, the next day I got the word that they were told the oil recoverable was only about 20,000 barrels an acre and it would not be worth while going into it, and that their oil friends had advised them that they recommend to me that I pool this acreage with Harrison and Abercrombie.

OIL WELL SUPPLY AND DRILLING CONTRACTOR ANGLE

Before I left Houston, I got in touch with the supply company which furnished most of the casing and materials in the Old Ocean field, and they thought the value of this property was exceedingly good and they agreed to notify their New York offices so that I would have information about drilling costs to present in banking circles. I called at the New York office of this supply company and they had preliminary information. A drilling contractor was going to furnish figures and drilling costs and then suddenly comes a wire from the Houston office of the supply company that no drilling contractor in Houston would furnish figures because of the great gas pressure. This shows very clearly that there was another kind of pressure than gas pressure. Here was further evidence of a conspiracy between vastly important interests, and I thought of the trial going on down in Kentucky where the Department of Justice had brought a criminal charge in Harlem County resurrecting an old law as a test. I had previously made a complaint to the Department of Justice where I had a most courteous hearing and I laid the facts before them as I saw them, for it was clear to me that I was combatting forces so powerful in their ramifications that apparently I was helpless. If this influence reached as far as Wall Street banking circles, some houses of whom I knew pleasantly and had an entree to, then there were forces behind the Old

Ocean oil field far greater than I had met and there were issues involved apparently far greater than I could understand.

For example, in one banking house where I had a very good friend, I presented the facts about the investment merit of financing the development of this property and he was interested. He called up a friend of his in Houston, a partner in a New York banking house which knew a good deal about Old Ocean. He told me that his friend advised him not to get in this because he would be fighting two of the richest men in the State of Texas and two of the most politically powerful men in the State of Texas and the development of this 20 acres might cost \$500,000.

FILING FOR A DRILLING PERMIT

This made me quite angry and I wired my attorney to file for a drilling permit and went back to Houston to see about it. The application was filed about the middle of May 1938. I retained a petroleum engineer, and the date of the hearing was set for June 9, 1938. I introduce into the evidence copy of the hearing on this drilling permit, case No. 26,350, June 9, 1938, also two briefs filed by my lawyer and the lawyer for the operators. These speak for themselves, and I will only briefly comment on the arguments on this drilling permit.

First, the operators are concerned about the safety of the railroad—that if we have a blow-out by drilling a well in the center of our tract, the location of which is 10 acres away from the railroad track, they were so fearful that the poor railroad might have to move out of the whole field. As it happened, my attorney represented the railroad, and he had heard no objection from the railroad at all. As a matter of fact, if we shipped our oil out in tank cars rather than pipe lines, we would be a customer of the railroad.

Then, the learned legal counsel of the operators were concerned about our title. Since we owned the property 20 years and paid taxes on it for 20 years, and it was located on the railroad track, they could not try any of the usual vacancy racket that is so prevalent in Texas, but they claimed they found that about 1874 there was something casting some doubt over the title. They introduced data to show that we didn't own our own land. Our property is located in the Bernard River Land and Development Co., a lumber holding of over 4,000 acres, from whom it was purchased 20 years ago. As this comprises a substantial part of the proven area of the Old Ocean Field, the operators' title is no good if ours is faulty. This title matter of course was a lot of legal clap-trap and is the sort of tactics by which buccaneering oil barons will brow-beat an ignorant and defenseless land owner out of his equity in his own oil. Clouding of titles is one of the big rackets of the oil business.

The amusing part of this is that after all of this sophistry, at the end of the hearing, the counsel for the Grand Dukes of Distillate and Barons of Benzine in substance stated to the Railroad Commission, "Oh, give him a permit if they will pool with us and jointly drill a well, sharing the expense." It was very strange that they wanted to go into partnership with us, after stating that we don't own the property. These oil operators had the audacity to demand of the Railroad Commission that they force us to pool our property and go in partnership with them or deny the fee owners of 20 years a permit to drill a well on their own property. The conception of vested rights of property owners under the Constitution as conceived by those oil operators seems to be very strange.

THE DISCOVERY OF THE CONSTITUTION

In recent years we have heard so much about the Constitution. It seems that the financial magnates, the oil magnates, and all the other owners of great wealth have suddenly discovered the Constitution. They talk about it, but apparently haven't read it, and here are oil magnates owning an empire of over 13,000 acres, demanding that the Railroad Commission of Texas (a regulatory body set up under the conservation laws) deny to a property owner of over 20 years the privilege of drilling a well on his own property to protect his own equity in his own oil and gas from drainage by surrounding wells.

THE AMAZING TESTIMONY OF THE OPERATORS

I wish to call to your attention the testimony of the operators' consulting engineer about the Hamman field twelve or fifteen miles west of the Old Ocean oil field. The depths and pressures are approximately the same. I ask you to read

the record of absurdity in technical testimony. On page 22, I want to call your attention to one question:

Q. How did the Harrison and Abercrombie blow-out in the Conroe field occur?

A. It is a long story.

I noticed a grin on the face of one of the legal staff of those operators and I regret that my attorney did not ask him a few pointed questions about that Harrison and Abercrombie crater which made one well take a big fraction of the allowable for the whole field for almost a year and gave them so much cash money that they were able to take a development which now appears to be one of the greatest oil fields in the world.

According to their own testimony, they have a total of about 2,000 feet of oil and gas sand which begins at about 9,800 feet. If true, this is the greatest oil sand body ever found in this country. This does not take into account the sand at 8,600 feet nor possible other productive sands above. From 9,800 feet is the Frio or Upper Oligocene Age. The customary estimate for this formation is 800 barrels per acre foot. Of over 13,000 acre holdings, the operators already have about 5,000 acres proved up by 30 completed and scattered wells. We have 20 acres, and we think we own 80/80 of all the oil that lies under our property.

We do not propose to give to these operators that oil on their own terms, whether it be their original offer to pay us \$2,500 for 79/80 of our own oil and allow us to have 1/80 of our own oil, nor do we propose to confiscate our position by paying half the cost of doing so. We intend to stay in the Old Ocean field indefinitely, and if we cannot have this 20 acres drilled and operated as a separate unit, nothing but weeds will come out of it, if I have anything to say about it.

Now, I suppose if we had lived on this small tract in a swamp and undergone the tribulations and trials of a small farmer over the recent 10 years or so, we might have had a loan on it from the Federal Land Bank, and we probably would have been carried during the years up until our property looked like it was oil property. Then, if we couldn't meet a sudden demand, I suppose it would have passed into the hands of these oil operators through foreclosure by the Federal Land Bank. However, there was no loan on this property at the Federal Land Bank or any bank.

Read in this transcript the testimony of their own engineer that our drilling on this 20-acre tract will not create waste but will prevent it, that a blow-out will be no bigger on a 20-acre tract than it will be on a 40-acre tract.

THE ACTION OF THE TEXAS RAILROAD COMMISSION ON THE PERMIT

The Texas Railroad Commission took no action on the application for the permit to drill on this 20-acre tract all during the summer while elections were on, but, about four months after, on September 27, 1938, they finally denied the application to drill a well without giving any reason why. The order of denial reads as follows:

State of Texas

RAILROAD COMMISSION OF TEXAS

Austin

#1 A. W. Pollard & Mrs. Nelly Pollard
Dailey 19.81 Ac., C. Breen Survey,
Old Ocean Field, Brazoria County.

Case No. 26,350
Rule 37

APPLICANT:

A. W. Pollard & Mrs. Nelly Pollard
Dailey
c/o Palmer Bradley
Houston, Texas

The application of A. W. Pollard & Mrs. Nelly Pollard Dailey for an exception under the provisions of Rule 37 coming on to be heard on the 9th of June 1938, by the Railroad Commission of Texas, and it appearing that sufficient reason does not exist for the granting of such exception:

Now, THEREFORE, IT IS ORDERED that the application of A. W. Pollard and Mrs. Nelly Pollard Dailey for an exception under the provisions of Rule 37 to drill well No. 1 on the A. W. Pollard & Mrs. Nelly Pollard Dailey 19.81 acre tract C. Breen Survey, Old Ocean Field, Brazoria County, Texas, is hereby denied.

ENTERED at Austin, Texas, on this the 27th day of September, 1938.

ERNEST O. THOMPSON,
Chairman.

LON A. SMITH,
Commissioner.

-----,
Commissioner.

Attest:

C. F. PETET, *Secretary.*

The above and foregoing is a true and correct copy of an order of the Railroad Commission of Texas entered on the above date.

(Signed) LATEN STANBERRY,
Laten Stanberry,
Chief Supervisor.

In connection with the Railroad Commission's denial of this permit, I wish to submit figures from the records of the Railroad Commission as follows:

Year	Permits to Drill Granted	Permits to Drill Denied	Gas	Comple- tions Oil	Dry	Permits to Plug
1938-----	12,414	509	64	9,212	214	3,058
1937-----	17,469	432	264	12,268	383	2,581
1936-----	15,009	567	144	8,751	126	236

Following advice of counsel, petition was made to the Railroad Commission for a rehearing which in due course was denied. The order denying motion for rehearing reads as follows:

State of Texas

RAILROAD COMMISSION OF TEXAS

Austin

MOTION FOR REHEARING

#1 Pollard & Dailey, 19.81 acres
C. Breen Survey,
Old Ocean Field
Brazoria County

Case No. 26350
Rule 37

APPLICANT:

A. W. Pollard and Mrs. Nelly P. Dailey
c/o Palmer Bradley,
Gulf Building
Houston, Texas

Motion for rehearing in the above numbered case having been this date considered by the Railroad Commission of Texas, and it appearing that the reasons set out in said Motion are not sufficient to justify the granting of a rehearing covering the application of A. W. Pollard and Mrs. Nelly Pollard Dailey for special permit to drill well No. 1, Pollard and Dailey lease containing 19.81 acres of land out of the C. Breen Survey in the Old Ocean field in Brazoria County, Texas:

Now, THEREFORE, IT IS ORDERED that the motion for rehearing filed by Andrews, Kelley, Kurth & Campbell, attorneys for applicant in the above numbered case, be in all things denied.

ENTERED at Austin, Texas, on this the 29th day of October, 1938.

ERNEST O. THOMPSON,
Chairman.

LON A. SMITH,
Commissioner.

-----,
Commissioner.

Attest:

C. F. PETET, *Secretary.*

The above and foregoing is a true and correct copy of an order of the Railroad Commission entered on the above date.

(Signed) LANTEN STANBERRY,
Lanten Stanberry,
*Chief Supervisor,
Oil and Gas Division.*

This left no recourse but appeal to the courts—a long and expensive procedure during which time our equity will be further confiscated even though we finally win in the courts. Following the denial of a rehearing on the permit application by the Texas Railroad Commission, my attorney filed suit in the District Court at Austin to reverse the arbitrary and confiscatory ruling of this so-called quasi-judicial board as the first step in the long route through the courts, which did not come up for hearing until March 13, 1939.

By reference to the spacing rule order promulgated by the Railway Commission under date of November 19, 1937, you will note that nothing is said about acreage, but that Rule I, referring to spacing of wells, states:

No well for oil or gas shall hereafter be drilled nearer than 1,320 feet to any other completed or drilling well on the same or adjoining tract or farm and no well shall be drilled nearer than 660 feet to any property line, lease line or subdivision line, provided that the Commission in order to prevent waste or to prevent the confiscation of property, will grant exception to permit drilling within shorter distances than above prescribed whenever the Commission shall determine that such exceptions are necessary either to prevent waste or to prevent confiscation of property. * * *

Up-to-date maps and records of the Old Ocean field show that the operators themselves are violating the spacing rule order through exceptions granted by the Railroad Commission, which denies the same privilege to us.

For example, the following permit to Harrison Oil Company and J. S. Abercrombie Oil Company, under date of March 7, 1939, gives them permission to drill a well, located with reference to adjacent property lines, about duplicating location of the well in the center of our property to the surrounding property lines.

State of Texas

RAILROAD COMMISSION OF TEXAS

Austin

#4 Will H. Chenault et al, 160 acres
Chas. Breen league,
Old Ocean Field,
Brazoria County

Case No. 27,869
Rule 37

APPLICANT:

J. S. Abercrombie Oil Co.,
2105 Gulf Building,
Houston, Texas.

The application of Harrison Oil Company, and J. S. Abercrombie Oil Company for an exception under the provisions of Rule coming on to be heard on the 6th day of February, 1939, by the Railroad Commission of Texas, and it appearing that the petition shows good cause; that no injustice will be done by the granting of such exception, and that the same should be granted to prevent confiscation of property:

NOW, THEREFORE, IT IS ORDERED that the application of the Harrison Oil Company and J. S. Abercrombie Oil Company for an exception under the provisions of Rule 37 and a permit to drill well #4 on the Will H. Chenault et al unit of 160 acre Chas. Breen Survey, Old Ocean field, Brazoria County, Texas, as shown by plat submitted is hereby approved and applicant is granted permission to drill well #4 to be spaced as follows:

6609.54 ft. S. E. of the N. W. line of Chas. Breen league;

5220.86 ft. S. W. of the N. E. line of Chas. Breen league;

500 ft. N. E., at right angles to most southerly southwest line of the tract;

354.6 ft. N. W. at right angles to the most southerly southeast line of the tract.

ENTERED at Austin, Texas., on this the 7th day of March, 1939.

LON A. SMITH,
Chairman.
ERNEST O. THOMPSON,
Commissioner.
JERRY SADLER,
Commissioner.

Attest:

C. F. PETET, *Secretary.*

The above and foregoing is a true and correct copy of an order of the Commission entered on the above date.

STANFORD PAYNE,
Chief Deputy Supervisor.

A well located in the center of our property has the following distances from five boundary lines as follows:

650 ft. S. E. of N. W. line.
445 ft. S. W. of N. E. line.
470 ft. W. of E. line.
590 ft. N. of S. line.
390 ft. E. of W. line.

You will note that the location of this permit is 500 feet from one property line and 354 feet from another.

On March 14, 1939, the District Court at Austin refused to reverse the Railroad Commission in its decision to deny the fee owners a permit to drill a well on their own property while just a week before the Railroad Commission of Texas had given to the Harrison Oil Company and J. S. Abercrombie Oil Company the same privilege which the Railroad Commission and District Court denied to the owners of the Pollard-Dailey land.

Referring to the records of the permit hearing, the arguments of the operators are rendered puerile by the language of the spacing order. The spacing rule order of November 19, 1937, is signed by the three Commissioners—C. V. Terrell, Lon A. Smith and Ernest O. Thompson, but I have a letter dated December 16, 1937, from Hon. Lon A. Smith, which I will read as follows:

HON. JOHN B. DAILEY,
321 Cotton Exchange Building, Houston, Texas.

DEAR MR. DAILEY: I have your letter bearing the date of December 14th, which I have read with a great deal of interest.

I note what you have to say regarding the hearing on the Old Ocean oil field in Austin on October 28th. I do not remember meeting you at that time.

I have also read your protest against an order of November 19th, which gave to Harrison and Abercrombie a spacing rule of 36 acres, which as you say is the largest that has been granted in South Texas. I too, feel as you do about the matter, and I have always been in favor of small acreage spacing rules, and allowing every person who owns even an acre of ground to drill his well. I have always been for the man who owns the small acreage and the independent operators, since I do not think it is anything but fair for each property or lease holder to have the right to drill his land, even though it may be nothing larger than a lot, if he has not cut it off from a larger tract just for the purpose of asking a special permit. We sometimes have such applications come before us. Your Uncle and your Mother should certainly have the right to drill on a twenty acre tract, and I shall be in favor of such an application.

I am glad to know you have decided to make Texas your home, and when you are in Austin, I trust you will come to see me in my office for a visit. I shall be happy to introduce you to some of my Texas friends.

With best wishes for the coming holiday season, I am

Most truly yours,

(Signed) LON A. SMITH, *Commissioner.*

When I returned to Texas about the first of February, 1939, I called on Mr. Smith and showed him the copy of this letter and he told me that was the way he still felt and that he was surprised that he had signed the order denying the permit and was unaware that he had done so. I want to say that this is quite possible because the Commissioners have to sign a great number of papers every day and it would have been possible for him to have signed this order quite mechanically.

We have had a situation in Texas for several years whereby one man practically dictated the policies of the Commission with one of his colleagues which left the third member of the Commission in the position of having little or nothing to say about what went on.

However, the denial of the permit under date of September 27, 1938, was signed by Commissioners Ernest O. Thompson and Lon A. Smith. It was not signed by C. V. Terrell but any order of the Railroad Commission is valid if signed by two of the three commissioners. This is the first time in the history of the Railroad Commission, so I have been informed, that an exception under Rule 37 of the Texas Conservation Laws has ever been rejected to drill a well on a tract subdivided prior to 1919 when the first spacing laws went into effect in Texas and, our situation to make our position in equity is even stronger, since it is fee-owned property for 20 years.

After this spacing rule order came out, both Commissioners, Terrell and Lon A. Smith, in conversation with me, stated that under the law we were entitled to have a permit as an exception to the Old Ocean spacing rule order. Col. Ernest O. Thompson was evasive on the matter when I discussed it with him, but he has stated numbers of times in speeches and in interviews that he is in favor of a property owner having a well on his own property irrespective of how small it is. Nevertheless, in this order he goes against what he has said a number of times publicly and it goes against every precedent in the history of the Railroad Commission, against the laws of the State, and against the Constitution of Texas and the Constitution of the United States.

Exceptions to field spacing rule orders are granted every week, in Austin, and, as everyone knows, exceptions in various fields have been granted on one and two acre tracts and, in many cases, on 1/10 of an acre. But, here is the denial of a permit on a tract of land as large as 20 acres, owned by the property owners for 20 years and never subdivided.

The Pollard-Dailey tract has been in the proven area of the Old Ocean field ever since August, 1937, when the Bernard No. 4 well came in just west of our property—which was the fifth well of the operators in the field. If it had not been for this arbitrary 40-acre spacing rule granted by the Railroad Commission at the request of the operators, we would have had about the eighth completed well in this field. But, the operators now have about 30 wells completed and it appears that through court delays our hands may be tied for possibly a year or even longer.

For purposes of record, I list the Proration Schedule of January 1, 1939, and that of April 1, 1939 referring to the Old Ocean oil field. This first schedule shows the well allowables as of January 1, but does not include several wells which had been completed prior to that time. The second schedule shows that reduced allowables were ordered by the Railroad Commission.

Where any well is allocated less than its marginal allowance the connected pipe line (or gatherer) is hereby authorized to run production from such well up to and including its marginal allowance after proper tender authority has been obtained from the Railroad Commission

[Proration schedules listed below are effective January 1, 1939, 7 a. m., until further ordered]

Company	Lease	Wells	Marg.	Pote.	Well Allow.	Lease Allow.
(2-40) North Dayton Field, Liberty County (Disc. 1905—Depth 400-5,200 ft):						
Borsodi, V. H.	Gulf Fee	1	25		10	-----
Deering and Kayser	D. & K. Pruett	1		S. D.		-----
Harrison Oil Company	Quintette	2	50		40	-----
	Gulf Fee	1	25		40	-----
	West Liberty	1	10		5	-----
McWhorter & Harlean et al.	Jamerson	3	10		15	-----
Whitley Oil Company	W. C. Moore	2	20		10	-----
		6			120	-----

Where any well is allocated less than its marginal allowance the connected pipe line (or gatherer) is hereby authorized to run production from such well up to and including its marginal allowance after proper tender authority has been obtained from the Railroad Commission—Continued

Company	Lease	Wells	Marg.	Pote.	Well Allow.	Lease Allow.
(3-41) Old Ocean Field, Brazoria County (Disc. 1934—Depth 8,600-10,500): J. S. Abercrombie and Harrison.	Armstrong Plantation.....	1	35	-----	386	-----
		2	35	-----	365	751
	Auspurger, L.....	1	35	-----	337	337
	Bernard River Land Devl. Co.	2	35	-----	210	-----
		1 ³	35	-----	303	-----
		1 ^{1-A}	35	-----	365	-----
		1 ⁴	35	-----	326	-----
		1 ⁵	35	-----	351	1,555
	Chenault.....	1	35	-----	331	331
	Copeland Osborne.....	1	35	-----	356	356
	Fisher Larsen.....	1	35	-----	338	338
	Kauffman.....	1	35	-----	340	340
	Larsen Edling.....	1	35	-----	327	327
	Larsen, C.....	1	35	-----	342	342
	Osborn.....	1	35	-----	348	345
	Sadler Larsen.....	1	35	-----	338	338
	Smith.....	1	35	-----	348	348
	Troyer.....	1	35	-----	337	337
	W. T. A. T.....	1	35	-----	361	361
	W. T. A. G. Co.....	1	35	-----	341	341
		20	700	-----	6,750	6,750
(3-43) Orchard Field, Ft. Bend County (Disc. 1926—Depth 2,500-4,100): Gulf Oil Corporation..... Orchard Field, 1,266 ¹ Sand: Gulf Oil Corporation.....	J. M. Moore et al.....	14	280	-----	-----	327
	J. M. Moore.....	1	10	-----	-----	23
		15	290	-----	-----	350

¹ Dist. #3, Page 84, 1-1-39—ej.

Where any well is allocated less than its marginal allowance the connected pipe line (or gatherer) is hereby authorized to run production from such well up to and including its marginal allowance after proper tender authority has been obtained from the Railroad Commission

[Proration schedules listed below are effective April 1, 1939, 7 a. m., until further ordered]

Company	Lease	Wells	Marg.	Pote.	Well Allow.	Lease Allow.
(3-40) North Dayton Field, Liberty County (Disc. 1905—Depth 400-5,200): Borsodi, V. H..... Deering and Keyser..... Harrison Oil Company..... McWhorter & Harlem et al..... Whitley Oil Company.....	Gulf Fee.....	1	25	-----	10	-----
	D. & K. Pruett.....	1	-----	S. D.	-----	-----
	Quintette.....	2	50	-----	40	-----
	Gulf Fee.....	1	25	-----	40	-----
	West Liberty.....	1	10	-----	5	-----
	Jamerson.....	3	-----	-----	-----	-----
	W. C. Moore.....	3	-----	-----	-----	-----
		1 ⁴	-----	-----	7	-----
		6	-----	-----	102	-----

¹ Dist. #3—Page 95, 4-1-39—ej.

Where any well is allocated less than its marginal allowance the connected pipe line (or gatherer) is hereby authorized to run production from such well up to and including its marginal allowance after proper tender authority has been obtained from the Railroad Commission—Continued

Company	Lease	Wells	Marg.	Pote.	Well Allow.	Lease Allow.
(3-41) Old Ocean Field, Brazoria County (Disc. 1934—Depth 8,600-10,500'): J. S. Abercrombie and Harrison.	Armstrong Plantation.....	1	35	-----	250	-----
		2	35	-----	250	-----
		4	35	-----	250	750
	Auspurger, L.....	1	35	-----	250	-----
	Bernard River Land Development Co.....	2	35	-----	250	-----
		13	35	-----	250	-----
		11-A	35	-----	250	-----
		14	35	-----	250	-----
		15	35	-----	250	1,250
	Buck.....	1	35	-----	250	250
	Chenault.....	1	35	-----	250	-----
		2	35	-----	250	-----
		3	35	-----	250	750
	Copeland Osborne.....	1	35	-----	250	250
	Fisher Larsen.....	1	35	-----	250	250
	Fidelity Armstrong.....	1	35	-----	250	250
	Kauffman.....	1	35	-----	250	250
	Larsen Edling.....	1	35	-----	250	250
	Larsen, C.....	1	35	-----	250	250
	McDonald.....	1	35	-----	250	250
	Osborn.....	1	35	-----	250	250
	Sadler Larsen.....	1	35	-----	250	250
	Smith.....	1	35	-----	250	250
	Troyer.....	1	35	-----	250	250
	W. T. A. T.....	1	35	-----	250	250
	W. T. A. G. Co.....	1	35	-----	250	250
Sun Oil Company.....	Campbell.....	1	35	-----	331	331
		27	945	-----	6,750	6,750
(3-43) Orchard Field, Ft. Bend County:						
	Gulf Oil Corporation.....	J. M. Moore et al.....	14	280	-----	327
	Orchard Field, 1,266' Sand:					
Gulf Oil Corporation.....	J. M. Moore.....	1	10	-----	-----	23
		15	290	-----	-----	350

¹ Dist. #3—Page 95, 4-1-39—ej.

The Harrison Oil Company and J. S. Abercrombie Company went into the Federal District Court at Houston and obtained a temporary injunction against the Railroad Commission on the grounds that such orders were arbitrary and confiscatory, and in conflict with the 14th Amendment and asked that a three-judge Federal Court be convened to enjoin the Commission in the Old Ocean oil field and other fields in which they had production. This three-judge court was to sit on April 28, and from a newspaper I notice that the court dissolved the injunction and supported the Railroad Commission.

These oil operators have taken an amusing position. In the State Court, they have claimed that the State of Texas through its agents, the Railroad Commission of Texas, had unlimited police power to prevent fee owners of property from having a well drilled on their own property and to keep the property owners from taking out a single barrel of oil from sub-surface minerals if the property was developed as a separate and independent unit. When, for the first time in four and a half years of development, the new regime of the Railroad Commission put in an order reducing the daily allowables of the wells of the Harrison Oil Company and J. S. Abercrombie Company, they tried to enjoin the State of Texas from reducing the allowables one single barrel.

It would appear that these powerful oil operators approve of the unlimited police power of the Railroad Commission of Texas when it is applied at their direction against somebody else. On the other hand, if the police power of the Railroad Commission of Texas is applied to them other than at their direction, they immediately seek the protection of the federal courts.

Meanwhile the operators are draining some of our own oil and gas, but even more serious damage to us is the confiscation of our relative position of strength in the field. The allowable per well in any oil field under conservation practices

is larger in the earlier stages of development and very naturally the rate of return on drilling costs is a very important factor. To illustrate the oil recoverable possibilities from this 20-acre tract, some very fair oil fields have only ten feet of sand. For example, in the Fairbank field in adjoining Harris County, so far the sand will not average more than 10 feet and here there is a 10-acre spacing rule order. It would appear, from the testimony of the operators themselves, that our 20 acres in oil recoverable might be equal to 4,000 acres in the Fairbanks field.

Ours has been a very long and expensive fight which the average small land owner could not have undertaken. My complaint has been brought to the attention of this Committee because I have been able to be articulate in fighting these operators, but the voice of the great majority of small land owners, who are the oil owners in fact, is inarticulate because they are forced to be easy and early victims to the oppressive tactics of powerful oil operators.

I wish to read into the record case #26350 as follows:

Case No. 26350

Applicant: A. W. Pollard & Mrs. Nelly Pollard Dailey, c/o Palmer Bradley, Houston, Tex.

Well Description: #1, A. W. Pollard & Mrs. Nelly Pollard Dailey 19.81 acres, C. Breen Survey Old Ocean Field-Brazoria Co.

Attorney for Applicant: Palmer Bradley, Gordon Griffin, John B. Dailey.

Protestant: Harrison & Abercrombie.

Attorney for Protestant: Elwood Fouts and J. B. Moore, J. C. Montgomery, Stanley Gill.

Application Filed: May 17, 1938.

Notice Issued: May 24, 1938.

Hearing Date: June 9, 1938.

EXAMINER'S MEMORANDUM, June 9, 1938

This location is requested according to applicant's statement in order to prevent confiscation of applicants' property. Evidence was submitted also that the drilling of a well on the tract would prevent waste.

The evidence shows that the property has been owned as a separate tract since April 7, 1919. The evidence further shows that if a well is drilled as requested and an equi-distant offset from the nearest property line to this location is drilled, the wells will be 780 feet apart.

Protestants objected to the location on the ground that the gas pressure in the field is extremely high, the shut-in pressure being approximately 5000# to the square inch which protestants contend creates a blow-out hazard, and for that reason wells should not be drilled at closer distances than 1,320 feet as provided by the spacing rule in effect in the Old Ocean field. Witnesses for both applicant and protestants testified that the blow-out hazard in this field is greater than in other fields. Both witnesses likewise testified that the drilling of the well in the approximate center of a 20-acre tract would not create waste, but on the other hand would tend to prevent waste. Protestants introduced instruments to show that an undivided interest in applicants' tract is claimed by parties other than those under whom applicant holds title.

Protestants offered to pool with applicants 20 acres of the land adjoining applicants' tract for the purpose of development in substantial compliance with the spacing rule in effect in the field, and stated in this connection that they were willing to accord applicant the choice of developing the pooled property themselves and sharing equally in the cost of developing and producing the same, or that Harrison & Abercrombie, protestants, would develop and operate the property on the same basis.

Applicant declined the pooling offer and stated that his claim to develop the property is based upon a vested right created through ownership of this property as a separate tract of land since April 1919.

Respectfully submitted,

RCG:EM

(Signed) R. C. GRANBERRY,
R. C. Granberry,

Chief Deputy Supervisor, Oil and Gas Division.

The requested spacing is—

445 feet south of the north line;

390 feet northeast of the southwest line;

565 feet northwest of the southeast line.

APPLICATION

GRANTED

DENIED

Written across the bottom of this memorandum was the notation in handwriting "according to the finding of fact I am in favor of *denying* this permit. E. O. T." I am informed by one of the employees of the Commission that this pencil memorandum is in the handwriting of Ernest O. Thompson.

Upon reliable information, I understand that R. C. Granberry, the Chief Deputy Supervisor, made a prior memorandum strongly recommending that this permit be granted and that it was seen on the desk of Col. Ernest O. Thompson, but that if it has not been destroyed, it was not entered in the record.

Up to very recently, the Harrison-Abercrombie interests, comprised of holdings of over 13,000 acres, have been the only operators in the Old Ocean field. Outside of their holdings, nothing was proven but our 20 acres, until very recently when the Sun Oil Company drilled on their tract of 340 acres and brought in a producing well.

In the proven area of the Old Ocean oil field, today, there are three operating positions: First, the position of the Harrison-Abercrombie interests who have a total acreage holding of over 13,000 acres; second, the Sun Oil Company who have a position of approximately 600 acres, having leased an additional 240 acres adjoining the original 340 acre holding; and, third, this 20 acre Pollard Dailey tract. Recently, the Harrison-Abercrombie interests stated in the federal court at Houston in their injunction proceedings against the Railroad Commission that about half of their acreage holdings was already proven. I want to restate again that our position was proven in the summer of 1937 while the Sun's holdings from the drilling then done was in the class of unproven oil land.

For almost two years, our hands have been tied by the tactics of the dominating factors in the Old Ocean oil field and we have only been allowed to get weeds out of the field while the Harrison-Abercrombie interests and Sun Oil Company take the oil.

It indicates a fine state of affairs in Texas when the Railroad Commission follows out the orders of dominating oil factors to force small operating interests into the hands of a monopoly situation on the dictated terms of the monopoly. Such conditions as this indicate a deplorable condition in the internal government of the State of Texas. It is no wonder that the people of Texas, in the election last summer, repudiated the policies of this arbitrary body by defeating two members of the Railroad Commission—one who sought election as Governor and the other who sought re-election to the Railroad Commission.

In the new Railroad Commission, power has shifted away from the hands of Ernest O. Thompson and we may have a new order of fairness and equity in future orders of the Railroad Commission of Texas.

Baldly stated, the old regime in the Railroad Commission, complying with the orders of these powerful oil operators, maneuvered the 20-year fee owners of important oil property into the position whereby they must trade with the operators on their own terms in order to get any oil income, for by such orders, they are prevented from dealing with anyone else on any terms whatsoever. This is barefaced confiscation of property. It is the taking of one man's property and giving it to another and is just as ruthless and unprincipled as the methods which have been followed in Germany in recent times.

On May 2nd the Railroad Commission granted a permit to drill a well on a one-acre lease-hold in the Old Ocean oil field, and I submit the permit order as follows:

State of Texas

RAILROAD COMMISSION OF TEXAS

Austin

[Copy]

Commissioners

LON A. SMITH, *Chairman*

ERNEST O. THOMPSON

JERRY SADLER

C. F. PETET, *Secretary*

#1 Washington Chapel Col M. E.
Church 1 ac. Chas. Breen Sur.,
Old Ocean Field, Brazoria, Co.

Case No. 28,243

Rule 37

Applicant:

W. T. Mack,

2527 Gulf Building, Houston, Texas.

The application of W. T. Mack for an exception under the provisions of Rule 37 coming on to be heard on the 19th day of April, 1939, by the Railroad Commission

of Texas, and it appearing that the petition shows good cause; that no injustice will be done by the granting of such exception, and that same should be granted to prevent confiscation of property:

Now, THEREFORE, IT IS ORDERED that the application of W. T. Mack for an exception under the provisions of Rule 37 and a permit to drill well #1 on the Washington Chapel Colored M. E. Church 1 acre tract, Chas. Breen Survey, Old Ocean Field, in Brazoria County, Texas, as shown by plat submitted, is hereby approved, and applicant is granted permission to drill well #1 to be spaced as follows:

88 feet northeast of the southwest line and

83.8 ft. northwest of the southeast line.

ENTERED at Austin, Texas, on this the 2nd day of May, 1939.

(Signed) LON A. SMITH,
Chairman.

JERRY SADLER,
Commissioner.

Attest:

C. F. PETET, *Secretary.*

THE INVISIBLE GOVERNMENT OF OIL MONOPOLY

In the State of Texas are located over one-half of the total oil reserves of the United States. This is the greatest mineral wealth located in any similar area in the world. The estimates of the oil recoverables of the State of Texas give figures which are staggering to the imagination. In only one field, the Old Ocean field, the oil recoverables are estimated in some billions of barrels. Under the administration of the Texas Railroad Commission grave abuses have arisen and since over one-half of the oil reserves of the United States are a vital factor in the national defense, the whole situation warrants a thorough investigation on the part of the authorities of the national government.

THE MYSTERIOUS OLD OCEAN OIL FIELD

The Old Ocean oil field has been a great mystery. What information that was given out early was false. Any real information was impossible to obtain, and the information now is gradually coming out. Opinions are conflicting, but they only differ in degree as to the probably greatness of this huge oil and gas reservoir. The circumstances and the mystery surrounding this field after four years of development are in themselves very extraordinary. For example, I have been unable to find out up to the present time from the Railroad Commission what is the gravity of the oil that is being produced from the various wells, nor can I find out what is the gas oil ratio.

Illustrating this, for the purpose of the record, I wish to submit the following letter:

TEXAS WELL LOG SERVICE

Nalle Building, P. O. Box 247, Austin, Texas

MARCH 22, 1938.

Mr. JOHN B. DAILEY,
Cotton Exchange Building, Houston, Texas.

DEAR SIR: This will acknowledge receipt of your letter of March 21 in which you return the ten logs on the Old Ocean Oil Field.

In checking the records of the Railroad Commission on the Old Ocean Oil Field, we have tabulated the data on the wells and filled in the blanks on such information as was available and hope it will be of value to you.

In our conversation with the Engineers of the Railroad Commission, we were advised that this is a dangerous field and they can not afford to experiment with the wells in making various tests. For instance, potential tests were not made on all the wells and practically all the wells have three chokes and these are of all sizes and types. Nor were tests made for the Gas-Oil ratio.

Yours very truly,

(Signed) TEXAS WELL LOG SERVICE.
M. A. SCHULZ
M. A. Schulz, *Manager.*

The fact that fee owners of a 20-acre tract in one of the greatest oil fields in the world on the Gulf Coast of Texas cannot get a permit to drill a well on their own property while the operators themselves can get exceptions to the spacing rule order, in a number of cases without any delay, when their drilling plots are not composed of exactly a square of 40 acres, is an indication of a grave situation and one which is not unnatural in view of the fact that dictatorial power over one-half of the oil reserves of the United States has in recent years been maneuvered into the hands of one man, a political official.

I have no objection to the Harrison-Abercrombie interests writing the spacing rule order for their own holdings, but I do not intend to submit without a struggle to their writing the spacing rule orders which will govern the development of our own property.

The invisible government of oil monopoly appears to be stronger than the government of Texas and it may be stronger than the government of the United States.

THE LAST OF THE MOHICANS

As to the land owners of the Old Ocean field who were in the beginning, the oil owners, we are in a sense the "Last of the Mohicans."

I have detailed in another statement an analysis of the land holdings of this area, most of which were in few hands, except for a relatively small amount of acreage. For example, deals with about five individuals blocked up over 10,000 acres. There are only about 1,000 acres of tracts under 100 acres in size, and of this assortment of tracts under 100 acres owned by 45 small land owners, there are only 8 tracts of 40 acres and up, and there are 37 of those small tracts which are under 40 acres, so that while two-thirds of the total acreage holding was owned by five large land owners, more than half of the total number of land owners had tracts of under 40 acres. These small land owners living on small tracts in a swamp themselves did not realize what a large spacing rule would do to them.

What has happened in the Old Ocean oil field is a clear illustration of what can happen in the production end of the oil industry where there is a tremendous concentration of holdings under a unified operating interest.

The record and the history of this whole situation spells monopoly, I am told that ours is a very unique situation in the history of the oil business, in that after four years of development the land owners have their own land proven up and unleased in the center of an oil field, which, while it appears to be one of the deepest fields in the world, is also one of the greatest.

If in the Spindletop field they only had one well to every 40 acres, only five wells would have been drilled. I cannot understand why we can't get a permit on our 20 acres of land. The operators have no trouble getting permits as exceptions to the 40-acre spacing rule when their drilling plots do not appear to be exact squares composed of 40 acres. Many drilling permits have been issued in the East Texas field where the drilling plots are no larger than 1/10 of an acre. Many exceptions are granted in every oil field in Texas almost every week. In a North Texas oil field, I happen to know that just some weeks before the election in Texas, on one narrow little tract of land composed of a total of between 4 and 5 acres, the Texas Railroad Commission issued 12 permits as exceptions. I am heartily in accord with the principle and the theory of conservation of national resources, but from my own experience have found that what is loftily called conservation is in practice often nothing but a barefaced attempt at confiscation. I have no desire other than to try to drill a well on our own property.

THE COTTON FARMER AND THE COTTON PICKER

It is true that I did not see fit to turn over our property and receive only 1/80 of our own oil, while realizing that 79/80 would go to the operators.

Suppose a cotton picker came along and said to a cotton farmer, "You have five nice fields of cotton which I am going to pick. I will give you 1/16 of the cotton in one field and take 15/16 of the cotton in that field, and won't that be nice? Then, also, I am going to draw off all the cotton from the other four fields by my suction pumps from the outside for myself."

That is exactly the comparable situation. Is it not reasonable to suppose that the cotton farmer would want to get a fair share of his own cotton in each of his five fields? Would he not feel that as the owner of the cotton he was entitled to more than 1/80 of his own cotton, and would he not resent giving 79/80 of his own crop to the cotton picker that came along with a lot of good modern cotton

picking apparatus? We have agricultural laws regulating cotton production, but is there any law which states that the cotton picker is going to get practically all the cotton just for picking it?

OLD PENNSYLVANIA SPANISH CUSTOMS

Operations in the production end of the oil industry seem to be based on the old Spanish custom dating back to Pennsylvania days, whereby the land owner, who is in the beginning really the oil owner, shall receive no more than 1/8 of his own oil. In pioneering days, wildcatting was what its name implied, a very risky, hazardous business, but in addition to that 1/8 royalty interest retained by the land owner, very substantial bonuses were paid for taking 7/8 of the land owner's own oil. But that is all changed now under conservation and modern geophysical methods of operation and exploration.

Since so much of the risk has been eliminated under scientific methods, it would seem the natural order of things for the land owner to get larger than 1/8 royalty and a larger cash bonus than formerly, but instead he gets far less under the practice of conservation. After exploration has located production, he gets \$1.00 per acre up for 7/8 of his own oil, and then comes a very large spacing rule and cuts his 1/8 royalty equity further, if he has not already sold his little 1/8 royalty in despair long before any drilling is done on his property.

UPON THE CROSS OF BLACK GOLD

Under conservation, the land owner, who is really the oil owner, in the State of Texas has been crucified on a cross of black gold, in the struggle of great interests of the oil industry to capture oil reserves. He has no organization to look after his protection such as independent refiners have. In most cases he is a very simple farmer living on a very barren piece of land struggling for a meager existence. But at the same time he is the oil owner. There is little left for him after this racketeering process, like a horde of locusts, passes over his land. He is the forgotten man under conservation.

Both Old Ocean and Hastings oil fields in Brazoria County were discovered in 1934, and to date about 500 wells have been completed in the Hastings field. During the slow development, in Old Ocean, a large part of the oil owners' remaining 1/8 royalty interest passed into the hands of the oil operators for relatively nothing, as the records of Brazoria County will show.

For example, one of the emissaries of the operators in the summer of 1937 told my uncle that the highest price paid for royalty that he had heard of was \$210 an acre. We now know that the operators seem to have absorbed a large part of the royalty in the field. Look into the records of Brazoria County and see what equity in this field is still in the hands of the original property owners at the time the development started. All this happened under the high-sounding name of conservation.

The oil operators dig a well. They know exactly what they have. They are not forced to tell anybody. The reports are deeply discouraging—a poor field with a little bit of gas sand. Nothing happens for awhile and they gobble up everything that is left. This is a very clear illustration of the fact that great buccaneering barons should be forced to give information in the public interest and also in the interest of the man who is formerly the oil owner.

We have an interstate oil compact, but what does it mean? Some feel that it simply means a compact on the part of larger oil companies to take what oil they want out of the other states, making a situation so the small factors will fall out of the game in Texas and all the great oil reserves in Texas will fall into the hands of a few major companies.

For example, in California, when a man drills a well, he is allowed to take a very large allowable until he has got his cost back. There is a very different condition in Texas. Major oil companies do not care anything relatively about current production, for their final aim is to get control of reserves. Naturally, they do not care what daily production is, for if it is small they can finance it, whereas the small operator cannot do so.

OIL BILLIONAIRES

The oil industry has always been buccaneering. Now, if a jungle and a swamp in Brazoria County has made two prospective oil billionaires in terms of ultimate oil recoverables, I have no objection to it, but when these two tycoons try to prevent me from having a well drilled on our own property, I am surely going to register a protest and get ready to fight them. If conditions are such in the State

of Texas that the invisible government of oil monopoly can control state officials and state government, I have no recourse but an appeal to the Federal Government, for, while I am, for example, a resident of the State of Texas, I am also a citizen of the United States and have rights set forth by the Constitution of the United States. While possibly over half of the oil reserves of the United States may be located in the State of Texas, I cannot see that this belongs solely to the State of Texas, but instead the oil reserves in the State of Texas are of great concern to every other state in the United States as well.

CONCLUSION

The Old Ocean oil field situation may be or may not be an illustration of current methods on the part of the powerful oil operators, and I am inclined to think it is an extreme case, but it is conceded to be one of the greatest oil and gas reservoirs in the world, and one of the two or three greatest on the Gulf Coast, the others being Hastings, Anhuac, Friendwood, and possibly one or two others of less degree. Oil fields stretch all the way from the border of Louisiana to the Rio Grande on the Gulf Coast, not to mention the other oil fields of Texas.

Our small position in this field has already been outlined. We intend to stay in this field and keep this holding. We may be prevented from having a well drilled on it, owing to forces against which we are powerless to contend and against which even the federal government may not be able to contend. Primarily, I am fighting a battle to defend our own equity in this oil field but at the same time the revelation of all of the facts about the Old Ocean oil field fights a battle for every land owner in oil country in the United States, and I hope for the public interest.

THE FUNDAMENTAL ISSUE

There is a great issue involved in this situation that is fundamental—whether a land owner who is the oil owner when events have in fact made a small oil company of his holdings can operate as an individual unit in the center of one of the greatest oil fields in the world. By the Constitution of the United States and the Constitution of the State of Texas and the laws of both, it would appear that he could, but whether in fact it is possible is quite another story. If a tremendous concentration of economic power can deprive us of our vested rights under the Constitution of the United States and that of the State of Texas, then the very roots upon which the foundations of this republic were laid have been blasted by the “oillogarchy” which apparently rules the State of Texas and may rule the United States of America.

OLD OCEAN FIELD

Tabulation of Data Provided by Texas Well Log Service in Their Letter of March 22, 1938, to Mr. John B. Dailey

Well	Top of Pay	Total Depth	Drilled to	Gravity of Oil	Kind of Choke	Amount of Oil Made on 24 Hr. Potential Test	Tubing Pressure	Completion Date	Gas Oil Ratio	Amount of Oil Well Was making on Last Allowable and Date
B R L & D #1	8,651	8,651		N. R.	3 chokes	21 bbl. per hr.	1,650#	11-9-34	N. R.	Off Schedule.
B R L & D #1A	9,811-9,835	9,835		N. R.	N. R.	340.71	2,875#	6-11-37	N. R.	365 bbl. per day.
B R L & D #2	8,639-8,650	8,657		N. R.	1/4"	745 bbl.	1,525#	11-7-35	N. R.	210.
Armstrong #1	10,263-10,437	9,963		Apr. 54	1/4"	None	2,900#	9-11-37	N. R.	386.
B R L & D #3	10,374	10,437		N. R.	N. R.	None	3,750#	2-28-37	N. R.	303.
B R L & D #4	10,600	10,408		N. R.	N. R.	325.78	3,700#	7-26-37	N. R.	326 bbls.
Larsen #1	10,075-10,221	10,587		N. R.	N. R.	343.54	3,825#	9-15-37	N. R.	342.
Smith #1	9,975-10,282	11,136		N. R.	N. R.	None	3,750#	11-13-37	N. R.	348.
Copeland Osburn #1	9,960-10,779	10,857		N. R.	N. R.	None	3,750#	12-29-37	N. R.	356 bbls. a day.
Armstrong #2				N. R.	N. R.		3,750#	1-8-38	N. R.	365 bbls. per day.

N. R.—No Record.

RECEIVED: Austin, Mar. 18, 1938, Oil & Gas Division.

EXHIBIT No. 1179

[Submitted by Russell Brown, general counsel, Independent Petroleum Association of America]

STATEMENT PROPOSED FOR PRESENTATION TO PRESIDENT'S TEMPORARY NATIONAL ECONOMIC COMMITTEE, BY HAROLD B. FELL ON BEHALF OF INDEPENDENT PETROLEUM ASSOCIATION OF AMERICA

Comments and suggestions of Members of the Association are invited

To the President's Temporary National Economics Committee:

The following statement is presented in behalf of the Independent Petroleum Association of America:

HISTORICAL BACKGROUND

The problem which this Committee is called upon to interpret really involves the question as to the type of government we shall have. It concerns the fundamental principles essential to the carrying on of free enterprise in all industries. While the conduct of the petroleum industry must be largely determined by those fundamental principles, nevertheless due to the migratory character of petroleum, this industry is different from any other industry and requires different treatment in the solution of its problems.

The petroleum industry within the span of a single life attained a leading place in the list of national business enterprises.

The production of petroleum in this country is the story of a natural growth and development. It has made its own opportunities. Facing new problems at each step, it has worked out their solution along natural lines.

The first producers of petroleum felt their way through darkness. They did not know what petroleum was. They did not know where it was. They were not sure what to do with it after they found it. They were not certain just what market might exist. Apparently few wanted it except as a questionable medicinal compound. Some wanted to burn it although no economic device had been constructed to utilize it as fuel. Nevertheless, they entered this unknown field and discovered the first oil-producing sands with their sixty-nine foot well. From that day to the present day, the members of the petroleum industry have step by step extended its frontiers from the known into the unknown. They have continuously developed new uses for this raw material. They have worked out new methods for its discovery. They have promoted markets for it. They have done this at their own cost and not always at their own profit. They have taken a natural curiosity and made it a national resource. They have thus made possible the transformation of our economic life.

All this has been done in the face of obstacles which, when they were first observed, seemed insuperable, in a competitive atmosphere that was not always wholesome and in the face of a public prejudice created by the conduct of a few. The present domestic petroleum industry is a monument to the faith, the labor and the sacrifice of multitudes whose names are not recorded.

LAWS GOVERNING PRODUCTION

The industry gradually learned that the production of petroleum must be conducted according to three different sets of laws: natural laws, statute laws, and economic laws. These three laws must be in harmonious relation with each other if the best results are to be realized. Basic to the other two are the natural laws. These natural laws concern the migratory character of petroleum, the natural driving pressure exerted upon it, its volatility and all the various other physical characteristics and phenomena of petroleum. These cannot be revised, repealed, or avoided. The penalties for ignoring them are swift, drastic, and inescapable. Recognized, they reward civilization; ignored, they impose penalties which might disastrously involve the industrial life of the whole nation. They do not concern themselves, however, with equity, with justice, or with other human ideals.

We have not yet discovered or understood all these natural laws which affect petroleum. Crude petroleum or reservoir oil is itself a mixture of hydrocarbons. Reserves of crude petroleum are widely distributed both geographically and geologically but are confined almost exclusively to sedimentary rocks. Oil accumulates where there is a suitable trap either structural or stratigraphic. It is generally associated with salt water and some times there is a free gas cap. The greater the pressure in the reservoir the greater the amount of gas which is held in

solution in the oil. The oil occupies the spaces in porous sandstones and limestones in association with gas.

Actual geological conditions are very complex with many unconformities including complicated foldings and faults. There is a great variation in the thickness of the productive horizons and the porosity and permeability of the productive horizons vary greatly. We are today utilizing advanced scientific technique to learn by what laws of nature the presence of petroleum may be discovered. Geology, stratigraphic analysis, aerial survey, physics, chemistry, electricity—all these and others are invoked in the search for oil. The fact that many of our important fields have been discovered by unscientific methods merely illustrates our comparative ignorance of the manner in which oil has been deposited and retained in the sand or rock. The location of an oil pool, therefore, while the element of chance enters in, is also related to our discovery and understanding of the physical or natural laws which affect its deposit and its natural storage.

Not only the discovery but also the production of petroleum must recognize certain definite laws of nature. The oil, gas, and water found in a reservoir are confined under pressure in a state of equilibrium. This natural pressure, or what is known as reservoir energy, is composed of the free gas under pressure, the gas in solution in the oil, and in the water or hydrostatic pressure against the oil on the flanks of the reservoir. The production of oil results from creating a point of lowered pressure in the reservoir. When a well is drilled and penetrates the strata overlying the reservoir and enters the reservoir, the pressure equilibrium is disturbed and the liquids and gases move through the pores of the sands to the point of lowered pressure. This lowered pressure permits the gas in the oil to expand and come out of solution and this expansion of gas in solution, together with the expansive forces of the free gas and/or hydrostatic pressure of the water against the flanks, forces the oil through the formation to the well and up to the surface.

When the components composing the reservoir energy have been depleted to such an extent that they are not sufficiently great to produce the oil by natural flow, pumps or other forms of artificial lift are installed and the lifting of the oil to the surface in that manner creates the pressure differential to cause the migration of oil to the bottom of the well. Of course as the pressure in the reservoir declines, more dissolved gas comes out of solution leaving the oil thicker and increasingly difficult to move.

The total reservoir energy and the total volume of oil and gas contained in any oil pool are definitely limited. Oil in a pool is never exhausted. The reservoir energy is exhausted and the reservoir is abandoned. The amount of oil ultimately recovered from any reservoir depends primarily upon the proper use and maintenance of reservoir pressures. Wide open flow or too rapid flow results in rapid depletion of the reservoir pressure and in water encroachment, both of which lessen the ultimate recovery from the reservoir. Scientific production of petroleum, such as is becoming general today, and which is promoted by the conservation laws of the various oil-producing states is based upon the recognition of the natural laws which determine the efficient rate of flow from an oil field, pool, or well.

Many oil fields or pools have been ruined, in a large part, by failure to recognize or work in accord with these natural laws. Overproduction in disregard of natural law, is any production whose rate will not result in the greatest ultimate economic yield. The production in certain fields has been doubled by withdrawing the petroleum in so orderly a manner that this has kept pace with the steady movement of water below the oil and into the sands. In the East Texas field this orderly production, based upon a recognition of the natural laws involved, competent petroleum engineers have estimated that two billion barrels of additional oil will be recovered from that field.

These natural laws do not concern themselves with the problems of ownership, with the uses of the oil, with the possible needs of the world today, or a decade hence, although they affect all these. They are practically automatic in their functioning. Before the petroleum industry or any governmental agency can determine its attitude toward important production problems, or the methods pursued by the industry, recognition must first be given to these natural laws.

NECESSITY FOR STATUTE LAWS

Some of these natural laws have created problems in the enactment of statute laws. One such natural law is involved in the migratory character of petroleum. Unlike the solid minerals or metals it does not remain in place. Coal or iron cannot stray from the land where they are found. Petroleum can and does so

remove. In an attempt to make statute law conform to natural law, courts have applied what is termed "the rule of capture." They have followed the old theory relating to wild beasts—that the one who captures or reduces to possession is the actual owner. This fallacious application of this theory has caused endless difficulties in the development of conservation policies by the petroleum industry and the various oil-producing states.

There are many of these natural laws which have thus necessitated the application of statute laws and have also been a determining factor in the development of economic laws. In illustration of this, one might point to the stripper wells of the nation or the wells of settled production. In these wells, there is no longer enough gas left or sufficient water pressure to bring the oil to the well. The oil can only be obtained by secondary methods of recovery. These are expensive processes. They add to the cost of the oil. Eventually, it may be expected that every well will become a stripper well or go dry. In most of the stripper well areas the wells must be operated continuously. If they are capped or allowed to remain idle for a long period, salt water intrudes and the deposits of oil beneath those wells may be entirely lost or its recovery made economically impossible.

It is true that some of these wells could be redrilled or made to produce by the application of some of the modern methods of recovery, but when the maximum recovery of a well is only a few barrels a day or as little as one-eighth of a barrel (as is the case in many instances) it is self-evident that the investment in new equipment would not be recovered in any reasonable period. Such wells, once closed, may be considered lost and the oil they reached as impossible of recovery.

The force of natural law has made it necessary for states to adopt regulatory legislation which will assure these stripper wells their proper share in the production program. While it is true that the large flowing wells could entirely supply the total demand of this country for a brief period, during which time low crude oil prices might be expected, this would mean the loss to the nation of the greater part of our known petroleum reserves, which underlie these wells of settled production.

Since the natural laws disregard all the very human problems of ownership and will aid the anti-social producer as fully as they will the one who is socially-minded and regardful of his neighbors' equities, it has been necessary for various oil-producing states to adopt legislation which will attempt to safeguard these rights. Only rarely is it possible for any person or company to own an oil pool or field of any magnitude. There may be many owners in a common reservoir of petroleum. One owner may drill a well or several wells before the other owners are prepared to develop their interest in this pool. So long as he operates, he is drawing from the pool in which others have their rights. Natural law will supply the one so drilling without any regard to the proportionate size of the surface property he may own or his relationship to other owners above the same pool.

One or more owners of the land above a pool may produce the oil without regard to the operation of other natural laws and in such a manner as to decrease materially the total expected recovery from that pool, while others in the pool may attempt to produce in a scientific manner based upon the gas or water pressure. Those who are operating by the first of these two methods are ignoring a natural law. The penalty for that will not be imposed only on the unscientific operator, but upon all the owners of that field. So statutory law must be invoked again and production from that field must be so regulated that the various owners may be enabled to recover in proportion to their interests and with proper regard to the largest ultimate recovery from that field.

EVOLUTION OF STATUTES

The first special statutes affecting the petroleum industry were intended to clarify and protect these property rights. Eventually the importance of this natural resource was recognized as new inventions made new uses and created new demands. As a result, the avoidance of waste has been the intent of practically all the recent regulatory laws which have been passed by the various oil states. This legislation has been of comparatively slow growth. It was experimental in the beginning. It used the trial-and-error method. A larger knowledge of the natural laws which are operating below the surface and a better understanding of the manner in which to work with those laws is producing a sound type of statute law and of regulations issued under these statutes today. It is worthy of note that no state has repealed its conservation statutes but, on the contrary, has revised and made them stronger in the light of experience.

The Federal authority also was invoked in this effort of the states to provide for the conservative production of this exhaustible resource. This was made

necessary, not alone because of the operations of the natural laws, but also because of the fundamental character of our government. While each separate state has full authority over this natural resource within its boundaries, no state could concern itself with the commerce in the products of this resource when that commerce was between states. Authority over interstate and foreign commerce is reserved to the Federal Government. When operators violated orders issued under the statute laws of a state which were designed to insure orderly and scientific production of petroleum with the greatest possible avoidance of waste, it was difficult for any one state to enforce its laws when the oil so produced entered the channels of interstate or foreign commerce. Therefore, the Federal government was asked to assist the states in the enforcement of their own laws by forbidding the interstate transportation of illegally produced petroleum or its products. The Connally Hot Oil Law, so-called, is the form taken by Federal legislation to enable the various states to make more effective their regulatory laws. Through the operation of this law, these producers who might attempt to wastefully produce from a common reservoir of oil or take more than their rightful share as determined by state law and the orders issued thereunder were subject to penalty if they moved it in interstate commerce.

This Federal legislation does not attempt to determine how much oil might be produced nor does it pass upon the wisdom or unwisdom of the state legislation or regulations. It merely forbids illegally produced oil from entering into the commerce between the states.

It has become evident to those concerned about the future that consideration must be given to economic law if irreparable waste of this valuable resource was to be avoided. Petroleum might be produced in accordance with natural law, in recognition of property rights and in harmony with state regulatory measures and yet be wasted. Petroleum for which there was no market demand had to be stored. Earthen pits were used in default of tanks. Rains and floods swept great quantities of this oil into streams where it was lost. Even when placed in proper storage it constituted a threat to the conservation program of the nation.

BALANCE OF SUPPLY WITH DEMAND

Out of all this there grew a recognition of the fact that any conservation program for the petroleum industry must be extended to include provision for a balance between supply and demand. The oil-producing states and the industry alike thus came to understand that economic law also plays a vital part in the avoidance of waste.

When markets for petroleum products are overloaded with more of these products than they can absorb, then a vicious circle is established. There are certain definite and fixed charges which the producer of petroleum must meet. He probably has loans to finance his organization. These with other obligations come due at fixed periods. He customarily adjusts his financial undertakings on the basis of an expected price sufficient to meet them. He knows, usually, how much petroleum his well or wells will be authorized to produce. The allocation orders under the proration system of his state generally take care of that. There may be variations up or down in the quantity he produces or in the price he receives for it. He expects this and allows for it. When, however, there is a serious oversupply and the price falls or when some other situation arises in the industry to decrease the price he receives, his natural impulse is to produce more oil in order that his total receipts in cash may be sufficient to meet his obligations. This adds to the oversupply with a resultant decrease in the price which may be followed by still further overproduction. This has actually been the case in the past more than once. The price of crude oil has tumbled as low as ten cents a barrel. When this occurred it caused a tremendous waste of an irreplaceable natural resource and diverted much of this overproduction to inferior and wasteful uses.

An irreplaceable natural resource must not be wasted. When there is an excessive supply of the products of such a resource, these products are diverted into inferior uses and may come into competition with the products of other natural resources demoralizing both industries, without real or lasting benefit to the ultimate consumer. This constitutes one of a number of types of waste. The petroleum industry has been definitely given to understand that wastes will not be tolerated. On this economic plane the petroleum industry is confronted with two conflicting forces. On the one hand the consumer wants the most possible for the least money. On the other hand the advocates of conservation insist that petroleum shall be so produced as to avoid all waste. The industry has been endeavoring to meet both of these demands.

THREE SOURCES OF SUPPLY

The formulation of a program involving a balance of supply with demand was complicated by the fact that there are three sources of supply. They are production, withdrawal from storage (which is simply utilization of previous production) and imports. The oil-producing states which have regulatory laws can prevent overproduction within their borders and thus avoid waste. The industry can control the amount which it withdraws from storage. Neither the separate states nor the domestic industry can control imports. Furthermore, the imported petroleum is produced by cheap labor or by forced or peon labor and from great concessions granted in some cases by dictators in smaller nations. This competes with the domestic petroleum produced by well-paid labor on leases which pay royalties to our farmers and landowners. It is also free from the many taxes paid by the domestic product. In this situation, Congress imposed taxes on imports of crude petroleum and its products. These excise taxes did not equalize costs delivered in the United States markets. Excessive imports contributed to the oversupply, so demoralizing the petroleum markets in 1932 that a serious situation was created which led the Administration to invite the various elements in the industry to meet in Washington in March 1933, to discuss some plan for recovery. It was clearly recognized and publicly admitted at that time that there must be some manner in which imports of petroleum might be prevented from frustrating the efforts of the various states to develop their petroleum resources without waste. The importers themselves recognized this and then informed the Secretary of the Interior, under whose auspices the conference was held, that they would limit their importations to the average prevailing during the last six months of 1932.

Since the production of petroleum occurs in nearly one-half of the states of the Union, it became evident that there must be some manner in which the various states could have impartially determined and reasonably accurate information in regard to the total amount of demand for consumption in this country and for export in order that they might properly develop the petroleum resources in their own state and prevent that waste which experience had demonstrated always came from an oversupply of the market.

The oil states and the domestic industry alike recognized that there must be some impartial and thoroughly informed agency which should supply this information. The Bureau of Mines answered this description. It now prepares forecasts of demand for motor fuel and crude oil for the various states and makes this information available. The Bureau, however, does not suggest the amount of production which any state may authorize nor does it attempt any allocation of the demand either for sections of the country or for fields or pools within a state. Using but not adopting the information thus made available the various state regulatory bodies, taking into consideration the physical characteristics of the fields or pools within the state, have established the quotas for the various fields and wells in each state.

INTERSTATE OIL COMPACT

For a better understanding of their common problems many of the oil states with the consent of Congress, have joined in an Interstate Oil Compact which has as its definite purpose the avoidance of waste in the production of their petroleum resources.

The objective of that compact is set forth in Article II of the compact itself in the following language: "The purpose of this compact is to conserve oil and gas by the prevention of physical waste thereof from any cause."

To accomplish that objective, Article III of the compact provides that each state bound thereby agrees to enact laws or if laws have been enacted to continue them in force so as to accomplish within reasonable limits the prevention of:

- (a) The operation of any oil well with an inefficient gas-oil ratio.
- (b) The drowning with water of any stratum capable of producing oil or gas, or both oil and gas in paying quantities.
- (c) The avoidable escape into the open air or the wasteful burning of gas from a natural gas well.
- (d) The creation of unnecessary fire hazards.
- (e) The drilling, equipping, locating, spacing or operating of a well or wells so as to bring about physical waste of oil or gas or loss in the ultimate recovery thereof.
- (f) The inefficient, excessive or improper use of the reservoir energy in producing any well.

The Compact Commission has no authority over the production in any state. It acts as a forum or a discussion group out of which those states which are members and those portions of the industry which attend the meetings of the Commission gain a fuller understanding of the forces which must be given consideration in any sound production program.

Out of the various agencies, state, interstate and federal, there has grown a program which is greatly reducing wasteful production and is developing such a degree of stability in the petroleum industry as to promote employment and encourage investments and to assure to the consumer an adequate and continuing supply of petroleum products at reasonable prices for a long period to come.

All these steps in regulation of production have come naturally. They have been the logical solutions of immediate and practical problems. They have all been challenged by those who found their own present interest and profit in the continuance of these conditions which the industry sought to remedy.

IMPORTS, A PROBLEM

Those who were more interested in international rather than American aspects of the petroleum problem objected to parts of this program and those who would selfishly profit by the wasteful production of domestic oil objected to parts of this program. Those who desired to promote the use of the products of their foreign fields, sought to stem the growing development of the domestic petroleum industry. They attempted to use the prestige and influence of the Federal government to this end. The Federal Oil Conservation Board was one of the agencies which seemed to encourage the importing group under the mistaken theory that there was an impending shortage of oil. That Board issued statements which were used as propaganda proposing the use of imported petroleum products instead of domestic products. In the name of conservation, an Oil Conservation Conference was held at Colorado Springs, Colorado, June 10-12, 1929, at which a policy of reservation of our domestic petroleum resources was proposed in the apparent interests of the great corporations which controlled importations of petroleum products.

Members of the domestic petroleum industry who attended that conference in the belief that it was, as it purported to be, a gathering in the interest of true conservation, became convinced that reservation rather than conservation was its purpose and withdrew. Out of that withdrawal came the organization of the Independent Petroleum Association of America, whose purpose was and is to develop and protect the interests of the domestic petroleum industry.

We recognize that there is another side to these questions. There are those who have not yet accepted the positions which the greater number in the domestic petroleum industry have grown to adopt. Their interests do not coincide with the interests of those who are supporting a policy of elimination of wasteful production. Their opposition therefore is inevitable.

The argument of our diminishing petroleum reserves has been repeatedly brought forth by those interested in the profits from supplying our markets, the largest in the world, with the products of the cheaper foreign petroleum. Various estimates of the amounts of our known reserves have been issued from time to time by various authorities. These have attempted to fix the dates of the probable exhaustion of these reserves. Long before those dates were reached we had consumed many billions of barrels of crude petroleum and still had more than the estimated total of these prophets. The fact is that the program of conservation for use has so promoted exploration and the discovery of new fields and pools of petroleum that there is no likelihood of premature exhaustion if waste is avoided. We can afford to use but not to waste these petroleum resources.

EXPORTS

Some propose the discontinuance of exports on the theory that this would conserve our resources. It is true, of course, that we export large quantities of petroleum and refined products. In contrast to imports, however, these exports in no way conflict with a program of conservation designed to promote the equitable and orderly development of a natural resource for use without waste. As has been shown, imports adversely affect the conservation program by nullifying the efforts of domestic producers and regulatory bodies to produce in accordance with demand and by forcing the abandonment of many wells because of the great cost differential between imported oil and that from wells of settle production. Exports exert no such influence.

The exports are merely one of the many and varied outlets which make up what is known as the demand for petroleum. As a part of this demand, they

provide a portion of the additional capital necessary to the progress of the industry in its successful efforts to furnish an assured supply of this valuable raw material. The history of the industry is characterized by a phenomenally rapid growth and a constantly increasing need for capital and labor. The benefits of such an economy spread to practically every phase of our national life. Any restriction of outlets would handicap and restrain this growth. Reservation and not conservation is the aim of such a policy. Private enterprise in a free economic system should rightfully be condemned for any wasteful practices in the development of a natural resource but its future progress and very existence are stifled by artificial restrictions on market outlets.

Furthermore, since America was the pioneer in petroleum this country built up an export trade throughout the world which naturally looks to this nation to supply certain petroleum necessities. This export trade represents a very considerable investment, the benefits of which go very largely to small independent units in the industry from whose wells comes much of the raw material of which the ultimate product is made. Should this export trade be abandoned, it might also mean the abandonment of many of these small wells which supply the oil from which the exported products are manufactured. This would not add to our total available reserves but would tend to decrease them through the loss of the oil underlying abandoned wells. Continuation of our export trade in products such as these, therefore, does not constitute any excessive drain upon our petroleum reserves but, on the other hand, actually constitutes a practical phase of our conservation program since these exports are a factor in making possible the steady and uninterrupted production of petroleum from wells of settled production.

Opposition to such slight restriction on importation as is imposed by the excise taxes is also offered by those who profit by an oversupply of petroleum. So long as there is a practical balance between supply (represented by imports, domestic production and storage withdrawals) and demand, there should be no distress oil obtainable at "bargain-counter" prices below the cost of production. Such distress oil, and its products, has, at times when the industry was demoralized, been bought up by some who made large profits. Their profits were, however, a by-product of disaster and widespread demoralization of the rest of the industry, the waste of incredible amounts of crude oil skimmed of its more volatile elements and the rest practically thrown away, bankruptcies, ruin of the financial structure of the oil states, increasing unemployment and decreasing purchasing power.

Equally insistent have been these elements in opposing the other state or national policies involved in the conservation program of a balance of supply with demand. They urge that restrictions on production be abandoned so that cheaper petroleum products may be available. Their claims have a certain logic. If we draw our current supplies of crude petroleum from flowing wells, we could produce it much more cheaply than at present when we take into consideration the higher costs of the pumping wells. The State of Texas alone, if it abandoned its regulation of production, could supply all our petroleum requirements for some time. For that matter, the great East Texas field could do so. Crude oil would then possibly fall as low as ten cents a barrel for a time. No one can deny the truth of this claim, so often urged by the opponents of controlled production. For a while some petroleum products might be cheaper—although the consumer would no more benefit from the cut in the crude oil price than the buyer of bread benefits from a drop in the price of wheat.

The same arguments are brought against the Interstate Oil Compact and the estimates of the Bureau of Mines.

CONSERVATION PROGRAM

If we plan merely for the immediate present and a brief future, then these opponents of conservation are right. If, however, the interests of the consumer in the coming years are to be considered, then they are wrong. The petroleum industry is now endeavoring to secure the largest possible utilization of all the elements in a barrel of crude oil. Such a policy can only be carried out if production in excess of demand is avoided. When there is excess production, then just the cream of the oil, the more volatile elements are utilized. The rest is wasted. That oil which might be thus wasted will under the present program of the industry supply the needs of consumers for long periods to come.

Under our present policy we are so producing our crude petroleum that we obtain the largest possible ultimate recovery from the sands and the largest utilization

after it is recovered. Where once we thought a 25 per cent recovery was satisfactory, we are now approaching the ideal of far greater recovery. This means that the consumer of petroleum products has the assurance of an adequate supply for years to come. It also means that these products will be available to him at the low prices which the industry has consistently maintained for many years. The interest of the consumer is, therefore, closely interwoven with the success of the national conservation program.

PRICE BASIS

Of equal concern to the consumer is the basis for determining price. The petroleum industry has suffered from an inverted price structure. The value and also the costs involved in the production of petroleum are both ignored in the price received by producers. The retailers established for the finished products, notably gasoline, a price which is satisfactory to them. On the basis of this price to the ultimate consumer certain margins are allocated to the retailer, to the wholesaler and to the refiner. Transportation takes its toll. After these elements have received their portions of the price paid by the ultimate consumer, the producer gets what is left.

In the early history of the petroleum industry, production was in the hands of a few. Through its control of market outlets, the producers were largely in the power of one company. After the dissolution of that one company under the anti-trust laws thousands of independent operators entered the industry. They constituted a balance which maintained competitive conditions and developed the industry along non-monopolistic lines. By virtue of their number and because of their owner-operation they were able to force and maintain a fair competitive condition within the industry and to obtain respectful treatment from the larger companies.

The current interpretation of the anti-trust laws is now handicapping the independent group in their efforts to protect themselves from the large integrated companies. Since the recent prosecutions, some of the larger companies either fear prosecution if they accept a sound production policy based upon conservation or use the alleged fear of prosecution as a reason for not following such a program.

The independent elements in the domestic petroleum industry therefore insist that provision be made in the law for the authorization of voluntary agreements within the industry subject to the approval of some proper Federal agency. Through such agreements the interests of the general public, of the consumer, of the competing elements within the industry, of labor and of all the many other elements concerned could be protected and a sound and practical program for use of this natural resource could be made effective.

Involved in all this is the question as to the policy we should pursue concerning this natural resource. We can either use it intelligently, use it wastefully, or reserve it for some unknown future date. The petroleum industry has been proceeding on the assumption that this natural resource should be used intelligently. This is the Oil Age. Transportation by air, land or water relies upon petroleum products. Through them we are developing power in our factories. They are essential to our modern life. That does not mean they will always be essential. Electricians, chemists and scientists are seeking new sources of power, heat and light. We do not know when a gasoline motor will be as antiquated as a wood-burning locomotive is today. Whether the new source of power and heat will be a synthetic hydro-carbon, release of atomic power or some direct conversion of the sun's rays into energy cannot be known. Reserve of our petroleum resources for some unknown but probably wiser future generation seems unwise in view of the steady advance of invention and discovery. We have sufficient oil for the present Oil Age, if we use it wisely, avoid its waste, and secure the largest utilization of each barrel. The policy underlying the program of conservation for use is based upon the belief that we should use our petroleum reserves intelligently while the need for them exists. A wise use of our known petroleum resources encourages exploration for new fields and aids development of new utilizations.

VOLUNTARY AGREEMENTS

The petroleum industry could more effectively conserve this natural resource and at the same time play a more important part in making its contribution to the nation's other industrial activities if those engaged in the various operations of production, transportation, refining and marketing were able to get together and work out the solution of their problems. It cannot safely do this at present. If provisions can be made for these voluntary agreements within the industry, the

wasteful overproduction of petroleum and the wasteful excess refinery runs might be avoided. Through the police power of the states, production can be controlled now but this power is somewhat nullified because it does not extend to refining and marketing. The problems of those two phases of the industry could be met if such voluntary agreements were permitted.

The problem of oversupply of gasoline which the refiners are facing today and which is of serious moment to the entire industry might not exist if the industry had been able to get together and make adequate provision for the needs of the country without the wasteful and excessive manufacture of more motor fuel than will be required currently.

The oil business must be organized in such a way as to make possible quick decisions and rapid readjustments. The element of new discovery may, at any time, completely unbalance its economic structure. Great progress has been gained through the method of state control, proration and curtailment. This, however, is no automatic panacea. When a new field is brought in, pipe lines must be built to it, refining facilities provided, and markets created. The law of supply and demand must, of course, prevail in the long run, but the sudden changes occasioned by unexpected discoveries will produce dislocations which are necessarily disastrous for many, particularly the smaller elements in the industry, unless prompt and efficient and coordinated steps are taken by the industry as a whole. The larger integrated companies can protect themselves better than the small independents in such a situation, but in the case of important fields, no one can do so fully without the most complete cooperation. Where this is not obtainable, the small operator and the independent suffer the most, even though it is recognized as a common problem and that all will be injured by delayed and improper adjustments. Where cooperation is necessary, consultation and agreement must precede it. To require that the oil industry should be conducted on a strictly individualistic basis is to set up a theory which would result in a monopoly, not necessarily through the survival of the fittest, but the survival of the richest. Where the Government has put unnecessary inhibitions upon cooperative action, it has injured the public and the whole of the industry and has done so to the especial hurt to the small independent producer.

The principles expressed in the anti-trust laws are generally accepted. That acceptance does not apply, however, to some of the current interpretations of those laws or to the manner in which they are put into operation. The adoption of ill-conceived theories or the substitution of unwarranted assumptions for facts become embarrassing when they result in penalizing an industry for actions which are in the best interests of the nation and the common good.

The place of the so-called independent producers in the industry is well established and well known, but the service which they render to the public in the way of providing genuine widespread competition is endangered by the attacks which are popularly supposed to have been initiated primarily with the idea of handicapping the integrated and larger units. It would be of no benefit in the long run to the small units in the industry to destroy the large ones merely because they are large and there is no substantial sentiment in favor of doing so. For whatever reason it may be, however, the regulatory activities of the Government appear to have been directed at them almost exclusively, and for this reason the managements of the larger units profess to be afraid to enter into the discussions and agreements amongst themselves and with the independent operators which are absolutely necessary for self-protection and in the public interest if the oil supply of the country is to be protected either in sudden emergencies or in current operations. Necessary industry contacts have been held in the shadow of this fear and with great circumspection. It is almost impossible to meet and make adjustments because of the fear that they may be brought into court for violations of the anti-trust act. It is the disposition of the industry, both large and small, to cooperate for the general good, but whether rightly or wrongly, the fear of prosecution is so strong that they dare not attempt to do so, except to the extent that they are able to blunder along without conference or understanding of one another's intentions.

If the independent oil man is to survive and if the industry is not to become monopolistic, some arrangement must be made which will permit the free play of enterprise, which can only come through mutual understanding.

CLARIFICATION OF LAW

The efficiency of operation of the industry as a whole is inhibited by doubt and uncertainty. Neither the independent nor the big integrated companies know where they stand. No matter how law abiding they may be, they can not

conform to all of the varying interpretations of all of the laws. In fact, to accept one interpretation of a law frequently involves the violation of another.

The independents do not ask for special favors, but they have a right to demand that the way should be cleared for a definition and a clarification of the situation so that they may at least know what it is necessary to do in order to conform to the laws and the policies of the Government. They have a right to demand not that they have a place in the councils of the industry, but that the industry may be permitted to have councils. They will make their own place and they will be able to maintain themselves.

This suggestion is, in essence, a plea for open dealing and for frank relations with the Government. The independent operator, at least, is getting very very tired of things which are done in his name and which invariably fly back and hit him in the face. If it were true that the majors were injured more than he, it would indeed be cold comfort.

There is no intent to make these agreements cover practices improper in character but to provide a means by which the smaller units could protect themselves against the larger.

UNNECESSARY DRILLING

One of the most serious problems confronting the producing branch of the petroleum industry has been the drilling of unnecessary or excessive wells. An unnecessary well has been defined by a sub-committee of the Independent Petroleum Association of America, on Unnecessary Drilling, as any well not needed to drain adequately a determined area because a well has already been drilled which will adequately drain such area. The size of the area which may adequately or efficiently be drained by one well varies according to conditions in each field. An unnecessary well has also been defined as "any well which will fail to increase ultimate recovery (from the field) by an amount sufficient to return the cost of investment, plus the cost of operation and royalties, and a reasonable profit."

In most fields the data are amply sufficient at an early stage in the development of the field to determine with reasonable accuracy the efficient and economic drainage area of a well. The drilling of more than one well to drain such area results in excessive or unnecessary drilling.

The drilling of unnecessary wells creates fire and other hazards conducive to waste and unnecessary increases the production cost of oil and gas to the operator and thus also increases, unnecessarily, the costs of the products to the ultimate consumer.

It has been estimated that probably close to \$170,000,000 has been expended in the drilling of unnecessary wells in the great East Texas field.

The elimination of the drilling of unnecessary wells can only be accomplished through the establishment of proper production units and drilling units. The establishing of such units has been accomplished in some of the fields in some of the oil-producing states through voluntary agreements between the operators, or the majority of the operators, with the approval of the regulatory body, and made effective by the regulatory body through the issuance of legal orders under the conservation laws of the states concerned. This is an example of how it is possible, in some of the states, to legally make effective voluntary agreements and is indicative of how the principle of voluntary agreements within the industry, subject to the approval of some governmental agency, can be made effective and beneficial not only to the industry, but to the ultimate consumer.

RECURRING INDUSTRY PROBLEMS

The industry feels the need of getting together to study problems which are of vital importance. Some of these it might be able to remedy if voluntary agreements were permitted. Others might be referred to the proper governmental agencies for consideration and appropriate action. At present the industry does not feel it can without embarrassment even gather to discuss these problems. Here are a few of the problems which recur in the operations of the industry:

INDUSTRY PROBLEMS

1. Pipe line proration ignores the allocation of state regulatory bodies and assumes for the purchaser the right to determine how much oil will be sold from the separate wells. This is a usurpation of the state's authority and violates the rights of the states as well as of individuals. It should not be permitted.

2. Tendency on the part of purchasing companies to discontinue the purchase of oil from stripper well fields from which they have been purchasing for many years, thus leaving these fields without an outlet or forcing the producers in the fields to sell their oil at less than the prevailing market price in order to find an outlet.

3. Selective purchasing, which is the tendency of some purchasing companies to elect the manner in which they will make their purchases in various fields to which they are connected. This tendency results from the desire of some purchasers to secure the major portion of their requirements from fields in which they have their own production, to the detriment of the independent producer.

4. Correction of price inequities so that a fair and equitable price per barrel for crude petroleum would enable producers in a common source of supply and in the same district to receive the same price for the same quality of oil. This problem and the following one are both related to the question of a proper basis for price in the petroleum industry. At present the price of finished products determines the price of the raw material regardless of cost, value, etc.

5. Establishment of a proper price basis which has as its foundation the cost of production. This would make easier the solution of problem 4 and would also affect the solution of problem 15.

STATE PROBLEMS

6. Lack of oil and gas conservation laws in some of the oil-producing states. Since over 25 per cent of the total national production, according to the latest figures available at this writing, is produced in states having no regulatory laws, the difficulty of maintaining a sound conservation program is self-evident. This refers only to the larger producing states and does not include states having only stripper well production which is not susceptible to proration.

7. Failure of the regulatory bodies in some of the oil-producing states having oil and gas conservation laws to enforce effectively the provisions of those laws in such a manner as to prevent waste.

8. Unregulated production in all oil pools in some of the states and in some fields in other states. This like the preceding problem is a matter for state action and supporters of a conservation program are endeavoring to have the states meet these responsibilities.

9. The equitable allocation of the total production of each state among the various fields and wells within the state. While improvement in state conservation laws and broader experience on the part of those administering these laws is correcting many inequities in these allocations, the industry feels that there is still need of great improvement and is actively urging in various states the correction of inequitable allocations.

INDUSTRY AND GOVERNMENT PROBLEMS

10. Lack of any definite restriction of imports which makes it impossible to predict properly, in advance, the portion of the market which will be supplied by imports.

11. The assurance to each oil-producing state of its fair and equitable portion of the total national production. Various proposals have been made with a view of meeting this problem. Extension of the powers of the Interstate Oil Compact, creation of a Federal empire, establishment of quotas in commerce are a few of these proposals.

12. The drilling of unnecessary wells which constitutes a heavy burden on the industry. An unnecessary well has been defined as one not needed to drain adequately a determined area because a well has already been drilled which will adequately drain that area or one which fails to increase ultimate recovery from the field by an amount sufficient to return the cost of investment, plus the cost of operation and royalties, and a reasonable profit.

13. The necessity for continuous operation at full capacity of the stripper wells. The greater part of our national petroleum reserves underlies stripper wells or wells of settled production. Many of these stripper wells would have to be abandoned if they ceased operation for a certain period. The daily production of these wells is so small that it would not be economically possible to redrill them although if continuously operated they will afford a supply of petroleum for many years to come.

14. The assurance of outlets to all producers in such manner that each producer will have his fair and equitable share of the market.

15. The detrimental effect on one branch of the industry resulting from unsound practices in other branches of the industry. The practice of large integrated companies of relying on profits in one branch to make up for losses in other operations, has resulted in the distress of the independent producer, refiner or marketer, each of whom is compelled to conduct his operations on a sound economic basis. Until this practice is stopped by appropriate legislation or by a requirement for segregated returns which will make clear to the investor unsound practices of large companies, this problem may not be solved.

Among the principles which might be made subject to agreements within the industry, the following might be named:

1. Effective utilization of natural reservoir energy in all new fields.
2. Prevention of uneconomic above-ground stocks of petroleum and products.
3. Assurance of permanent, effective balance of supply with demand.
4. Establishment and maintenance of equitable proration, within and between oil pools.
5. Elimination of unnecessary and unprofitable drilling.
6. Protection of the "stripper" wells.
7. Establishment of a proper basis for determining price.
8. Elimination of the subsidizing of losses in one branch of an integrated company with the profits from another.
9. Establishment of rules making possible sound and ethical practices in the marketing division of the industry.
10. Assurance to small refiner of access to supply of raw material as well as access to market.

Respectfully submitted.

INDEPENDENT PETROLEUM ASSOCIATION OF AMERICA,
H. B. FELL, *Executive Vice President*.

EXHIBIT No. 1180

[Submitted by Russell Brown]

REPORT OF THE SPECIAL STUDY COMMITTEE OF THIRTY-SIX OF THE INDEPENDENT PETROLEUM ASSOCIATION OF AMERICA, ADOPTED AT THE CALLED MEETING OF THE ASSOCIATION DALLAS, TEXAS, JUNE 6, 1939

The following report was adopted at the meeting of the Independent Petroleum Association of America, at Dallas, Texas, June 6, 1939, having been presented by the Special Study Committee of Thirty-Six appointed by the President, Chas. F. Roeser, in accordance with the following resolution adopted at the Ninth Annual Meeting of the Association held at Tulsa, Oklahoma, October 21, 1938:

"WHEREAS certain proposed resolutions have been submitted to the Resolutions Committee of the Independent Petroleum Association of America by members of such Association, action upon which, in the opinion of the Resolutions Committee, should be deferred until each of such proposed resolutions has been subjected to careful study and consideration by a special committee appointed for such purposes, and

"WHEREAS the time available during the present sessions of the Association, in Annual Convention assembled, is insufficient for such study and consideration as the seriousness of such proposals require,

"BE IT THEREFORE RESOLVED: 1. That the President of the Association be, and he is hereby authorized to appoint a Special Study Committee, consisting of 36 members of the Independent Petroleum Association of America;

"2. That there be, and are hereby submitted to such Special Committee for study, the proposed resolutions relating to:

"(a) Pipe line divorcement.

"(b) Complete disintegration of all integrated companies.

"(c) Temporary prohibition of all imports of petroleum and its products.

"(d) Recommended total shut-down in all oil-producing states having regulatory bodies.

"(e) Umpire to make allocations that are enforceable between oil-producing states.

"(f) All other questions submitted to them by the President or Executive Executive Committee.

"3. That such Special Committee make its study and recommendations on each of such proposed resolutions to a special meeting of the members of the

Independent Petroleum Association of America to be held in December, 1938, on call of the President, or at such other and different time as may be determined by the President and the Executive Committee."

In accordance with Paragraph (f) of this resolution the President submitted for the Committee's consideration:

- (g) The question of marketing divorcement.
- (h) The question of including refinery regulation in the Interstate Oil Compact.

SITUATION WHEN COMMITTEE WAS APPOINTED

These resolutions were the result of conditions which threatened the stability of the industry. Unjustified price cuts were spreading. Neither crude nor refined products were at a proper price level. Supply, from each of the three sources, production, withdrawals from storage and imports, was high, although not high enough to justify the threat to the whole price structure on a national scale. Selective buying was increasing and taking the place of ratable purchases from a common source of supply. Proration by pipe line was assuming authority which should be vested in and exercised by state agencies. Stripper well areas were being cut off from connections. Arbitrary power, exercised by a few integrated companies, was dominating producing, refining, and marketing, conducting these operations on such a basis that competition was impossible for independent units or those who had no pipe line profits with which to subsidize operations conducted at a loss.

The resolutions demonstrated the gravity of the situation and the spirit of the independents in the industry. The Special Study Committee, after weighing all the facts, urged such action by the industry as would remedy the admitted evils without plunging the entire industry into conditions the result of which none could foresee.

These conditions have not all been corrected.

CHANGES IN SITUATION

There have, however, been some changes in the situation since the appointment of this Committee. Among them are the following:

The necessity of maintaining a balance between supply and demand has been recognized by some states.

There appears to be a growing recognition of the need of sound conservation laws in some states now without them. Michigan and Arkansas have passed new legislation. Other states have considered the need of regulatory laws.

Michigan has voted to become a signatory to the oil compact. The original signers have renewed their request for Congressional approval of the pact with one exception.

Buying has been resumed from some wells where it had been discontinued.

Connections with some stripper wells have been re-established.

The Securities and Exchange Commission is considering the proposal to require more detailed and separate returns from integrated companies showing profits and losses from each branch of their business.

The Federal Trade Commission has been requested to prevent unfair practices in the marketing branch of the industry and is now considering the approval of a Code.

SITUATION AT PRESENT

The present situation is much as follows:

There is still overproduction in certain areas.

The rate of flow in some fields is greatly in excess of that which would accomplish the greatest ultimate economic yield therefore is in violation of fundamental conservation principles.

Ratable taking from common sources of supply is not followed in several areas.

There is much unnecessary drilling.

Excessive runs to stills are continuing.

Selective buying still exists.

There is some pipe line proration.

The unsound price structure, based on the finished product rather than on the crude petroleum, is continuing to cause producers to pay for bad practices of the marketing branch. Sound economic practice requires that the price of finished products be based fundamentally on costs, beginning with the raw material.

Price wars, rebates, substitutions, tax evasions and unfair practices in general, over which the producer has no control, are reflecting adversely upon the producing branch of the industry.

Imports have recently shown a marked increase and emphasize the need of additional and more definite restrictions.

FOUR BRANCHES OF INDUSTRY ARE RELATED

Four separate divisions constitute the petroleum industry. They are production, transportation, refining and marketing. Each of these divisions is essential. Each of them has a direct relation to and is affected by the other three. Some corporations engage in all four of these separate activities. A still larger number of independents are engaged in one or more of these divisions but few are active in all four. The fact that each of these four divisions is part of the movement of petroleum from its crude state in the pool to its delivery as a refined product makes them related parts of that economic unit which we call the petroleum industry. Uneconomic activities on the part of one of these divisions may have a decided effect upon one or more of the other divisions.

Sound economic practice requires that each of these branches be so operated as to justify its own existence. Only such a policy can insure a fair competitive field to those companies, which are unintegrated or only partially integrated, or promote healthy conditions in the industry.

When profits are taken from one or more branches of the industry and used to subsidize unfair or uneconomic practices in other branches of the industry, then competitive units are destroyed, demoralization in a greater or lesser degree occurs and not merely the petroleum industry but the industrial health of the Nation is adversely affected.

It is of serious importance that practices such as these should be ended. They might be ended by drastic and severe measures. In the present unsettled situation pervading our national industrial life it might prove disastrous to the separate divisions of our industry if such unusual measures were adopted now.

POSSIBLE RESULTS OF DIVORCEMENT

Fundamentally producers are concerned with two things (a) their fair and equitable share of the day's market, (b) a compensatory posted price for their product. We do not attempt to definitely prophesy that divorcement and disintegration would permanently, or for that matter immediately or temporarily adversely affect us in either respect, but we are apprehensive that such result could and might ensue.

It is obvious that the large amount of presently shut in production would in itself, if divorcement and disintegration were brought about, invite the various buyers of crude oil who might come into being under entirely new practices and methods which might then characterize the business, to purchase their oil supplies at the nearest and most convenient points, and also at the lowest possible prices. Such a condition would immediately result in a still further general lowering of crude prices, and there well might be many producers with remote or stripper supplies of oil who would find themselves without any outlets or markets at all.

It has been suggested that in case of divorcement and disintegration many additional independent refineries would be built in the centers of heavy distribution. But those new units in the business would be motivated by a normal and economic desire for profits based on low-priced crude and they would doubtless soon acquire, in active competition with each other, that same gallonage complex which seems to dominate the retailing end of the industry today. This will serve as an example of the numerous reasons why we cannot reach the optimistic conclusion that producers would be benefitted at all. On the contrary our best present guess is that our interests would in all probability suffer.

The record does show that, under the existing order, independent producers, have in many instances been harshly and unfairly dealt with. To mention but a few of the reasons therefor we call attention to the practice of those possessing purchasing power to arbitrarily place their purchases in pools and areas where they are also producers, with the result that they market more of their own oil. We further call attention to a general tendency on the part of those engaged in the refining and marketing branches, and this applies to units both large and small, to let the retail price of gasoline determine the price of crude. When it happens that such units, regardless of their size or integrated character, can no longer

operate profitably, their thoughts turn always in one direction, and unfortunately for producers that direction is toward the posted price of crude. Having done so, then the whole price structure again moves down to that new base, and they find themselves as badly if not worse off than they were before, and producers of crude have been penalized and punished without such purchasing and refining units having accomplished their objectives at all—that objective being as we have said to reduce their losses, or possibly make a small margin of profit in the manufacturing and marketing end of the business. It is possible that the possession of some of the profits from the producing and transportation end of the business may have made it possible for certain of such units to maintain higher posted prices for crude than it has been possible for smaller units without those profits to maintain. In support of that conjecture we point to the record of recent months. It shows that crude oil price cuts originated with the spread from and among the smaller users and purchasers of crude oil.

We think the real economics of this industry should proceed on a fundamental principle of ratable takings and a compensatory price for crude oil, and we feel that refiners and marketers should get it out of their minds that they can absorb losses of their own making at the expense of the producer. If they would accept such a principle as a basic one which should not be deviated from then presumably they would devise an economically sound solution of their own problems on a fair and equitable basis that would not pass losses of their own creation back to the producer of the raw material.

The Interstate Oil Compact and the states, members of the Compact which have conservation laws, have accomplished most constructive results in oil and gas conservation, but the Compact cannot effectually provide the needed relief unless all oil producing states have and enforce adequate conservation laws and are signatory to the Compact.

INTEGRATED COMPANIES FAIL IN DUTY

We know that the large integrated units are opposed to disintegration and divorcement, but they doubtless realize that these things and probably Federal control as well will come unless they undertake what in substance amounts to the discharge of a public duty. They have failed to assume and discharge that obligation in the recent past. It is reasonable to suppose that they will continue to fail to do so in the future? If in advance of the final answer to that question these units are disintegrated and if divorcement comes then obviously they no longer have any position to protect that will differ in any way from the position of numerous other units in the industry and they will no longer have any incentive to assume and discharge the public or quasi-public duty that now rests upon them.

We know in view of the Madison indictments that we cannot expect any concerted action by these units, but we believe it is still possible for them to act individually and not in concert and particularly if the various regulatory bodies function as they should, we believe such individual action will bring about a composite result which would protect the consumer and the producer as well.

If the passage of a reasonable period of time discloses that these things cannot, or will not be done; if wells remain unconnected; if there is too much discrimination in purchases among the states, and among pools within the states, and if the producer does not receive a compensatory price for his product—then in such case the independent producer must determine his future course of action.

DIVORCEMENT NOT RECOMMENDED NOW

For these reasons, among others, your Committee does not at this time think it advisable to recommend that the transportation of petroleum and its products, including the operation of pipelines, be divorced from the other branches of the petroleum industry.

Neither do we recommend that the Association at this time advocate the divorcement of marketing from other branches of the petroleum industry nor the disintegration of the industry into its four natural divisions.

As a simpler alternative we urge that the integrated companies within the industry take steps immediately to conduct their separate divisions so that each division will justify its own existence and can operate on a proper economic level.

MUST CORRECT TRANSPORTATION PRACTICES

The practices complained of in the transportation division of the petroleum industry must be corrected whether we have divorcement of pipe lines or not. Even if we had this divorcement, we cannot afford to lose sight of the necessity

to correct these improper practices. These may not necessarily be confined to pipe line operations. There may be evils creeping into other modes of transportation which require constant alertness on the part of those who desire to preserve their interest in the petroleum industry.

Pipe lines are now subject to regulations of the Interstate Commerce Commission and as common carriers should be required to respond to such regulations as would correct improper practices now engaged in. However, the industry itself must plead guilty to a failure to exercise the privilege of bringing to the attention of the Interstate Commerce Commission and the various state regulatory bodies having authority over transportation, such improper practices as have grown up within this division of the industry. We should use to the fullest extent the existing machinery to meet just such conditions as are here complained of.

COMMITTEE TO STUDY TRANSPORTATION

We, therefore, recommend to the Independent Petroleum Association of America that its President be directed to appoint a permanent committee of five members to function in cooperation with the President, Executive Vice President, and Counsel of the Association, under the direction and supervision of the Executive Committee of the Association, to study the transportation of crude oil and its products by pipe line, rail, water, truck, or otherwise, and the rates and tariffs governing such transportation to the end that the excessive transportation costs, if any, now prevailing be eliminated and only reasonable and fair rates and tariffs be hereafter approved by the regulatory bodies authorized by law to fix the same.

Furthermore, it is recommended that such Committee be authorized, upon approval of the Executive Committee, to intervene in behalf of, and to arrange for representation of this Association in hearings before any regulatory body, federal or state, having authority over petroleum transportation, when deemed advisable. It is recommended that such Committee be further authorized in like manner to appear before congressional and legislative committees and bodies for the purpose of obtaining the passage of any legislation deemed necessary to require the owners thereof to report to the proper legal bodies the cost of all pipe lines now in existence, or hereafter laid, the cost of operating and maintaining the same, the determination of the profits thereof, and the limitation of such profits within reasonable limits, or any other measures necessary to ensure proper practices in petroleum transportation.

REAFFIRM POSITION ON IMPORTS

On question C, concerning "Temporary Prohibition of All Imports of Petroleum and Its Products" we recommend that the Association reaffirm the position taken on this question at its Annual Meeting at Tulsa, Oklahoma, in October, 1938, when the following resolution was adopted:

"In the interest of conservation of our petroleum reserves and for further purposes of stabilizing the petroleum industry and thus maintaining its purchasing and employing power, domestic producers of petroleum have accepted limitation of their production. By doing so they have avoided much waste of this irreplaceable natural resource. The Federal Government has given a certain degree of approval to this policy through passage by Congress of the Connally Hot Oil Bill, continued authorization of the Interstate Oil Compact and the rejection by Congress of an attempt to prevent the Bureau of Mines from issuing its recommendation of production by states.

"The balance of supply with demand is now accepted, generally, as a vital conservation policy and as an important stabilization factor.

"Imports of petroleum products constitute an important part of our supply. These imports are not subject to the same regulations and the same limitations which have been accepted by the domestic petroleum industry. The excise taxes on these imports, which the recent Congress continued for two more years, are not high enough to act as a sufficient barrier to the importation of crude oil or fuel and gas oil.

"Since the domestic petroleum industry is subject to very fixed limitations as to the amount it may supply to the domestic market and the export trade, it would appear to be only fair that foreign imports should have a similar degree of regulation.

"THEREFORE, BE IT RESOLVED by the Independent Petroleum Association of America at its Annual Meeting held in Tulsa, Oklahoma, this 21st day of October, 1938, that Congress is hereby petitioned to impose an adequate tariff

on imports of petroleum and its products, and that until such time as this tariff may be adopted the present excise taxes on imports of crude oil and fuel and gas oil be increased from one-half cent to one cent per gallon, and that new excise taxes of two dollars per ton be levied upon imports of asphalt, natural or otherwise.

"It is further resolved that Congress is hereby petitioned to adopt legislation restricting the imports of crude petroleum and its products to an amount not in excess of 4.5 per cent of the consumptive demand in this country as estimated by the United States Bureau of Mines.

"IT IS FURTHER RESOLVED that Congress is hereby petitioned to repeal that section of the Revenue Act of 1932 which exempts from excise taxes importations of crude petroleum and its products used for the supplies of vessels."

NO NEED FOR SHUT-DOWN

On question D, concerning the "Proposed Total Shutdown in All Oil Producing States Having Regulatory Bodies" we believe there is no immediate necessity for and doubtful legal basis on which to found such action.

FEDERAL UMPIRE TO MAKE ALLOCATIONS

On question E, concerning "An Umpire To Make Allocations That Are Enforceable Between Oil Producing States" the Committee has given much consideration to the proposal heretofore submitted by Amos L. Beaty in the form of a suggested bill to be presented to Congress providing for a federal umpire to make allocations of crude oil production enforceable between the states. A copy of this bill is in the appendix.

It is felt that this subject is so far reaching that it deserves a more complete study. Your committee therefore, recommends the continuation of this study by the special study committee until the next Annual Meeting of this Association unless conditions justify an earlier report. We believe that during this period the Temporary National Economic Committee will have held its hearings and we will have the benefit of additional information developed in them.

SPECIAL COMMITTEE PROPOSED

Your committee recommends that the Association approve the appointment of a committee of five, of which the President is the Chairman, to undertake to accomplish the following objectives:

First: To expedite the approval by the Federal Trade Commission of the Code of Fair Competition that has been submitted to the Commission by the oil industry; and failing to obtain its prompt approval, to ascertain the specific objections thereto in its present form that have been lodged against it, either by the Federal Trade Commission or the Department of Justice.

Second: To ascertain the cost of a study and the time necessary to complete a study of the problems of the oil industry from the refinery to the consumer in the refining and marketing branches of the industry and to determine the effect of these practices on the producing branch of the oil industry, and to ascertain the availability of the Harvard University, the Wharton School of Finance, the Brookings Institute and similar organizations to make such study.

Third: To ascertain whether or not it is lawful and feasible, and if so, then to undertake to have the Securities and Exchange Commission require that all integrated companies listed and reporting to the Securities and Exchange Commission to make annual statements of the result of their financial operations in the four departments of such integrated companies, to-wit: production, transportation, refining, and marketing.

VOLUNTARY AGREEMENTS WITHIN INDUSTRY

On the question of "Refinery Regulation under the Compact," no recommendation is made concerning the Compact. It was, however, voted to recommend that Congress be requested to pass legislation authorizing voluntary agreements within all basic industries affecting industrial operations, such voluntary agreements to be subject to the approval of a proper governmental agency, and that when so approved those operating under said agreements should be exempt from penalties under the various anti-trust laws, such act of Congress to also provide that Congress might withdraw the immunity granted upon proof of violation of the provisions of such agreements.

THREAT IN ANTI-TRUST LAW INTERPRETATIONS

Under the inspiration of the necessity of preserving a place in industry for sound competitive conditions, such as the independents in the petroleum industry seek, the Congress of the United States passed legislation known as the Anti-Trust Laws. Under the operation of these laws, a great number of individuals have entered the petroleum industry and created and maintained for a number of years wholesome competitive conditions as well as industrial developments. What was created for the benefit of industry is often used as a threat against its welfare. This is so much so that the competition once assured by these acts is now being destroyed by the threat resulting from their improper and novel interpretation.

We reaffirm our faith in the value of these laws and our belief in their merits. But, in the confusion resulting from current interpretations we are often uncertain and insecure in the conduct of normal activities essential to our best operation. This should not be. There should be a program of confidence under which industry could conduct its normal operations, assuring economic stability to employees, to the industry, and to consumers alike. This could be accomplished by the authorization of voluntary agreements within the industry subject to the approval of some designated federal agency. We, therefore, recommend that this Association renew and reaffirm its request to Congress for such authorization.

CONTINUANCE OF COMMITTEE

In view of the constantly changing situation and in view of the necessity of continued study of these problems, your Committee respectfully suggests that it be authorized to continue its work until the coming Annual Meeting.

[Appendix]

PROPOSED BILL TO FURTHER REGULATE INTERSTATE AND FOREIGN COMMERCE
IN PETROLEUM, BY AMOS L. BEATY

AN ACT to amend and extend the Act approved February 22, 1935, Public Act No. 14, 74th Congress, and to further regulate interstate and foreign commerce in petroleum so as to bring about, through factual studies, and Federal intervention if necessary, fair and equitable ratios among and within the producing states and aid them in conserving this natural resource and preventing waste, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled:

SECTION 1. In this Act, the term "interstate commerce" is used in its broadest sense and includes commerce with foreign nations and among the several states; "intrastate commerce" means commerce wholly within a state and which is not interstate commerce; "market demand" means demand for consumption in the United States, including the District of Columbia and all territories and possessions of the United States, and for export from the United States; "person" means any natural or artificial person, including corporations, joint-stock companies, common-law trusts, associations, partnerships, executors, administrators, receivers, and trustees; "month" means the calendar month, and "barrel" means 42 gallons.

SECTION 2. The Secretary of the Interior shall administer this Act. Without regard to the civil service laws but subject to the Classification Act of 1923, as amended, he may designate or appoint such bureaus, boards, assistants and agents as to him may seem necessary, with such authority as he may delegate. References in this Act to the Secretary of the Interior mean the Secretary acting directly or through others whom he may authorize to act for him.

SECTION 3. The Secretary of the Interior shall prescribe and promulgate such rules and regulations as may be reasonable and necessary for the purpose of carrying out the provisions of this Act, including the requirement of sworn reports and complete data from operators and the production of their books and records, the issuance of certificate of clearance for crude petroleum or products thereof which may move in interstate commerce, the giving of public notice of hearings, and the publication of estimates and forecasts.

SECTION 4. The Secretary of the Interior shall make such investigations, assemble such statistics, and carry on such factual studies as will enable him with reasonable accuracy (a) to estimate and publish each month (1) the quantity of crude petroleum previously produced in the United States and in each producing state from month to month over a period of not less than one year and (2) the market demand which existed for the production of each state in each month and

(b) to forecast and publish by the tenth day of each month the market demand for crude petroleum to be produced in the United States and in each producing state during the ensuing month; and he shall accordingly make and so publish such estimates and forecasts. For states in which radically varying grades of crude petroleum are produced, estimates and forecasts shall separate the grades under general classifications, such as light crude and heavy crude, with approximate range of gravities for each, or under other suitable classifications, all in the discretion of the Secretary of the Interior. In making forecasts, national and state, the Secretary of the Interior, in addition to considering past and current market demand and the trend, shall take into consideration and give effect to (1) anticipated imports (2) expected drafts upon storage which will not result in shortage of supply and (3) expected additions to storage which will not result in excessive stocks above ground, and (4) such other factors, similar or dissimilar, as may be found essential to just and reasonable ascertainment, all with due regard to the prevention of waste and the balancing of supply with demand. The quantity forecast for each state shall be its just and reasonable share of national market demand. A certificate or official statement shall be made by the Secretary of the Interior in each instance that he has considered and given effect to the factors here enumerated, and it shall be prima facie evidence that he has done so.

SECTION 5. So long as the production in any state, as estimated by the Secretary of the Interior, does not exceed the quantity previously forecast under Section 4 as the market demand for crude petroleum to be produced in such state during the corresponding period, there shall be no Federal intervention under this Act in that state. But if in any month the production of crude petroleum in any state or states, as estimated by the Secretary of the Interior, shall exceed the forecast for that month of market demand for crude petroleum to be produced in such state or states, and if the Secretary of the Interior further finds that a substantial portion of such excess production or the products thereof have moved in interstate commerce to the material detriment of other states or operators therein or the public, the Secretary of the Interior shall at once declare Federal intervention in such state or states and fix the effective date not more than thirty days from the date of such findings and declaration. And the Secretary of the Interior in the same event shall establish and thereafter while deemed necessary maintain an office in each such state.

SECTION 6. The Secretary of the Interior shall thereupon and from month to month while Federal intervention continues, ascertain and record in his state office, subject to public inspection, a just and reasonable quantity and portion, or well share, of the market demand, as forecast for the state, including both interstate and intrastate commerce, for each and every well in the state, on a monthly or daily basis, as to the Secretary of the Interior may seem best for administrative purposes: Provided, however, that the quantity for no well which is found to be incapable of producing more than ten barrels of crude petroleum daily shall be stated at less than its potential; and provided further that for areas where the just and reasonable quantity for all wells is ascertained to be their full potentials, wells may be grouped and quantities stated for the fields, pools or areas. For the first month after the effective date of Federal intervention in any state ascertainment of well shares shall be upon such information as the Secretary of the Interior may have or can readily obtain and without a public hearing, subject to adjustment in later months; but thereafter no ascertainment of well shares shall be deemed complete until after public hearing in the state, of which reasonable published notice shall be given in each instance. And, while Federal intervention exists in any state, public hearings, of which such notice shall be given, shall be held before forecasts are made and published under Section 4. In ascertaining well shares the Secretary of the Interior shall accept and follow any laws of the state governing production and proration, and the orders, rules and regulations of state authorities made under and in accordance with such laws, so far as this may be done within market demand for production in the state, as ascertained and forecast under Section 4. In the absence of such state laws, orders, rules and regulations, he shall, in the ascertainment of well shares, determine the market demand as to each field or pool, within the limit of his forecast for the state, and, after allowing ten barrels daily to each well capable of producing that quantity or more, apportion the balance for the field or pool among the wells therein according to well potentials, as determined by him: Provided, however, that where wells are drilled on closer spacing than he finds to be reasonable and proper for the field or pool a reduction shall be made proportionate to acreage. Thus, for example, where reasonable and proper spacing is found to be one well on ten acres of land, and a well is drilled on a two-acre site, the well share above ten barrels daily shall be one-fifth of what it would be if the site consisted of ten acres.

SECTION 7. The Secretary of the Interior shall require reports of operators and otherwise take such steps and measures as will enable him to determine whether his orders and findings have been and are being complied with. He shall compile and post or keep open to public inspection at his state office a complete list headed or entitled "Excluded from Interstate Commerce." This list shall show those wells, if any in the state, from which movements into commerce, interstate and intrastate both included, are found by the Secretary of the Interior to have exceeded on the whole the applicable well shares during Federal intervention. It shall contain the name and location of each such well and the name of the owner or operator if known, or so much of this information as the Secretary of the Interior may have available. The list shall also include any storage tanks, other than tanks directly connected to wells, into which the Secretary of the Interior finds that crude petroleum produced in excess of well shares has been run, together with such definite location and description as the Secretary of the Interior from information obtained may be able to give. Wells and tanks thus listed shall be deemed posted and so long as they remain posted crude petroleum therefrom is excluded from interstate commerce. Likewise, and regardless of postings, there is hereby excluded from interstate commerce all crude petroleum produced in excess of well shares, or which, together with movements to storage and in intrastate commerce, results in such excess, if the person receiving the same knows or has good reason to believe that well shares are being exceeded. The Secretary of the Interior shall cancel a posting and remove the well or tank from the list upon a showing by the owner or operator and a finding by the Secretary of the Interior (1) in case of a well, that the owner or operator has reduced his production so as to conform on the whole to well shares determined from the beginning of Federal intervention, provided such adjustment is found to cover all wells in the state owned or controlled by such owner or operator, or (2) in case of a tank, that it no longer contains any crude petroleum produced in excess of well shares and that the owner or operator has agreed that he will not in the future violate the provisions of this Act or any order, rule or regulation made hereunder. But such cancellation of posting and removal from list shall not affect any penalties that may have accrued. The Secretary of the Interior may post any well or tank in connection with which the owner or operator fails to give full and true information upon request. For the purposes of this Act flow tanks or those to which a well is directly connected shall be deemed parts of the well.

SECTION 8. When Federal intervention under this Act is in effect in a state it shall be unlawful,

(1) For the owner or operator to sell, exchange, deliver or otherwise place in interstate commerce, directly or indirectly, any crude petroleum from a posted well or tank in the state, or any crude petroleum from a well in the state when such transaction, alone or together with movements to storage or in intrastate commerce, results in a well share being exceeded, or

(2) For any person by such method to so place in interstate commerce, directly or indirectly, any product derived wholly or partially from crude petroleum which under this Act is excluded from interstate commerce, knowing or having good reason to believe that the product was so derived, or

(3) For any person to purchase, acquire, receive, or otherwise obtain in interstate commerce, from the owner or operator of a well or tank any crude petroleum which under this act is excluded from interstate commerce, or

(4) For any person to purchase, acquire, receive, or otherwise obtain in interstate commerce any product, derived wholly or partially from crude petroleum which under this Act is excluded from interstate commerce knowing or having good reason to believe that the product was so derived.

Transactions in intrastate commerce which substantially affect interstate commerce shall be deemed interstate commerce for the purpose of this Act, and if while Federal intervention is in effect in any state there shall be produced from any well in such state crude petroleum in excess of its share in commerce, interstate and intrastate commerce both considered, and if such excess of any product derived wholly or partially therefrom shall move in intrastate commerce under circumstances such as either alone or in connection with other similar movements to substantially affect interstate commerce such movements shall be held to have occurred in interstate commerce. A finding of the Secretary of the Interior as to the effect of such intrastate transactions upon interstate commerce shall be prima facie evidence of the fact.

SECTION 9. Any person who violates a provision of this Act or any valid rule or regulation prescribed hereunder, or who willfully refuses to obey any reasonable order of the Secretary of the Interior made hereunder, or who intentionally aids or abets another who is guilty in any such respect, shall upon conviction be

punished by a fine not exceeding \$2,000, and any person who violates Section 8 of this Act shall upon conviction be punished by an additional fine equal to the value of the crude petroleum or products thereof involved in the transaction. Proceedings to recover such fines shall be brought by and in the name of the United States and shall be governed by Section 10 of the Act approved February 22, 1935, so far as applicable.

SECTION 10. If any person fails or neglects to obey or observe any order, rule, regulation, or determination made hereunder, while the same is in effect, the Secretary of the Interior or the United States by its Attorney General may apply to an appropriate district court of the United States for the enforcement of the same, and the Court shall have power to enforce obedience and observance by a writ of injunction or other proper process, mandatory or otherwise.

SECTION 11. Any state or person adversely affected by any decision, order, rule, or regulation made under this Act, or by any act done or threatened hereunder, having presented a petition for relief to the Secretary of the Interior, which has not been granted within ten days after presentation, may seek relief by a suit for injunction or otherwise in an appropriate district court of the United States. The suit shall be tried in accordance with general equity principles: Provided, however, that no temporary, permanent, or other injunction, restraining order, or writ shall issue in such suit unless and until the case shall have been heard and determined by a court constituted of three judges in the same manner as provided in Section 380 of Title 28 of the United States Code, which section and the procedure thereof are hereby extended and enlarged to include such cases; and courts so constituted shall have power to grant full and complete relief. This remedy for such causes of action shall be exclusive.

SECTION 12. No common carrier refusing to accept petroleum or petroleum products for transportation from a state where Federal intervention is in effect shall be liable on account of such refusal if the shipper fails to present a certificate of clearance covering the shipment tendered, and no common carrier shall be subject to any penalty under this Act in any case where such carrier has covering the shipment a certificate of clearance which on its face appears to be valid and to have been issued by the Secretary of the Interior under this Act, or if such carrier, as respects any shipment originating in an area where certificates of clearance are not required under authority of this Act, has no reasonable ground for believing that the petroleum or product thereof is excluded from interstate commerce. The Secretary of the Interior shall issue certificates of clearance upon request in all proper cases.

SECTION 13. Federal intervention may occur in any state or states as often as conditions may warrant, as in this Act provided and under it determined. It may be suspended by the Secretary of the Interior with the approval of the President of the United States as to any state or states when the Secretary of the Interior decides that conditions requiring such intervention no longer there exist and that there is no reasonable probability of recurrence. It shall be so suspended as to any state wherein the production of crude petroleum, as estimated by the Secretary of the Interior, for three consecutive months has not exceeded forecasts for the State under Section 4.

SECTION 14. If any provision of this Act or any clause, sentence, or part hereof shall be held unconstitutional or invalid for any reason, or the applicability thereof to any person, circumstance, commodity, or class of transactions shall be held invalid, the validity of the remainder of the Act and the applicability thereof to other persons, circumstances, commodities, and classes of transactions shall not be affected thereby.

SECTION 15. Section 13 of the Act approved February 22, 1935, Public Act No. 14, 74th Congress, is hereby repealed and the remainder of said Act is hereby extended and continued in effect, without date of termination, so far as the same is not in conflict with the provisions hereof.

* * * * *

(NOTE.—This draft differs from the previous draft particularly in sections 4, 6 and 13. Slight changes occur in other sections to simplify and strengthen the provisions.

The writer reached the conclusion that in section 4 there need be mentioned no factors except those now specified, but that in section 6 a more definite standard or basis of decision should be stated.

If deemed necessary, a section can be inserted on the subject of imports and the subsequent sections renumbered.

A. L. B.)

EXHIBIT No. 1181

[Submitted by Mr. Walsh]

A STATEMENT PREPARED FOR THE TEMPORARY NATIONAL ECONOMIC COMMITTEE, BY RICHARD B. KAHLE, PRESIDENT, AND LOUIS J. WALSH, VICE PRESIDENT, OF EASTERN STATES PETROLEUM CO., INC.

FORMATION AND OPERATIONS OF COMPANY UP TO 1935

Eastern States Petroleum Co., Inc. is an independent refining company owning and operating a modern combined cracking and topping plant having a capacity of 15,000 barrels of crude oil per day, of which 10,000 barrels is in cracking capacity. All of the capital stock is owned by the President and three Vice Presidents, there are no outside stock holders and no bond holders. The company is distinctly a personally owned enterprise, employing only American labor and operated by the four officers of the company.

The company was formed during the summer of 1932. Mr. Kahle, the president of the company, had his first oil experience in 1915 as an engineer in the office of the chief engineer of the Standard Oil Company of New Jersey. From that time until 1923, except 15 months spent as a member of the A. E. F., he was active in building and operating refineries for the Standard of New Jersey as well as serving as operating superintendent of its tank steamer fleet and in its executive offices. He left that company in 1923 to become president of the Louisiana Refining Corporation, at that time an independent producing, refining, and marketing company with headquarters in Shreveport, Louisiana. In 1925 he also became president of the Beacon Oil Company of Everett, Massachusetts, purchasing crude from crude oil producers in Texas and Louisiana and marketing products primarily in New England and in New York State. Mr. Walsh, Vice President has his first oil experience in 1915 as a refinery engineer for the Prudential Oil Corporation at Baltimore, Maryland where he was engaged for about three years. About one year during the war he was an engineer with the Bethlehem Steel Corporation.

In 1919, he became associated with the Beacon Oil Company at Everett, Massachusetts, becoming vice president in 1925 and continuing in this capacity until 1931. In 1932 he assisted in the formation of the Eastern States Petroleum Co., Inc. and became vice president of this company at that time.

The other officers of the company have had similar long and varied experience in the oil business both with independent companies and with major oil companies. The above personal history is merely to show that in starting this company we were not venturing into unexplored territory or leaping blindly into a highly hazardous business.

We planned to do a wholesale distributing business in petroleum products, moving the products of independent refineries in the East Texas Field in chartered tank steamers to New England and the North Atlantic States for delivery to large jobbers and consumers. It seemed a logical business venture. There were a number of East Texas Refineries without adequate markets, there was a surplus of tank steamers and there were numbers of independent jobbers and consumers on the eastern seaboard whose independent source of supply had dried up or diminished during the period from 1928 to 1930. During these years, Standard Oil Company of New Jersey had purchased the Beacon Oil Company and Continental Oil Company had purchased Prudential Oil Corporation of Baltimore, the Shell had purchased the New England Oil Company and the Warner-Quinlan Company had been purchased by the City Service Company. These purchases left no independent refining companies on the Atlantic Seaboard or Gulf Coast east of New Orleans.

We recognized that there were hazards, we knew that we would have the opposition of the major companies, but felt that a depression time was the right time for men with little capital, ample experience and sufficient nerve to start a business. Accordingly we launched our business.

Hardly had our ship been launched when we ran into some very shallow water. The terminal company which we had planned to use repudiated its contract with us. We had a vessel en route to New York with a cargo of gasoline representing our entire capital aboard. We had no place to unload the cargo. There were a number of terminals with vacant tanks at the time but no terminal company would lease us storage. By distributing part of the cargo directly into barges for delivery to our customers and by securing the help of an independent competitor we worked ourselves off this shoal spot.

We promptly ran into a new danger, the Tank Steamer Pool of September 1932. In the summer of 1932, a number of the major oil companies formed a so-called "Oil Transport Management Conference" (Tank Steamer Pool) which was finally embodied in two agreements dated September 10, 1932. One of these agreements set up a basis under which all the tank steamers under the American flag, or as many of them as could be persuaded to sign such an agreement, would join a pool, theoretically to stabilize the tank steamer business, and theoretically placing the tank steamers of the country in the category of common carriers. The second agreement provided the conditions under which pool members and others were to have the use of these tank vessels. Briefly, the plan consisted of operating the vessels so that the major oil companies, owning tank steamers, who were members of the pool, would have vessels at one rate, and their competitors, the independent oil operators, who owned no tankers would pay a rate more than twice as high, the difference between the two rates being rebated to the major company owners.

While called a tank steamer pool, it was actually a pool of only 16% of the major oil companies tanker business who were members thereof. Each of these companies was to give to the pool 16% of its oil carrying trade and reserve outside of the pool, vessels adequate to handle 84% of the business, which vessels had previously operated at cost. The pool management was to operate vessels over and above the tonnage required to move 84% of the members companies' business, if, as was the fact at the time, this tonnage exceeded the amount required to move the 16% remaining business. Certain of the vessels were to be laid up so as to produce a balance between requirements of demand and supply. For the vessels so laid up the owners were to receive a laid-up fee calculated on a barrel basis adequate to produce for them their lay-up cargo. All users of the pool vessels were to pay a price per barrel of, at the time of the beginning of the pool, 42 cents a barrel, the difference between that price and cost of around 17 cents being used to pay the laid-up fleet charges and, secondarily, as a profit to the pool members. Thus an oil shipper, not a tank steamer owner, desiring to charter a vessel would pay 42 cents per barrel for his transportation whereas a member's cost as a tank steamer owner would be about 17 cents for 84% of his transportation, 42 cents for 16% or an average of roughly 21 cents, just one-half the transportation cost of his competitor. In other words, the competitors 42 cents charge would pay as a rebate to the privileged owners the lay-up cost of the owner's vessels. The owner was therefore at an advantage, first, by the privilege net flat rate which he enjoyed and second by the rebate received on his competitors' business. It was an illegal rebate plan pure and simple.

A number of the independent oil companies, including our own, objected to this proposed agreement and asked an investigation by the Attorney General in the fall of 1932. As a result of this investigation the plan, which most certainly was illegal, and most certainly was designed to produce monopoly, was dropped. The Attorney General's office is fully conversant with the facts in this case, and we feel certain would confirm to you that the plan proposed was obviously designed to produce monopoly.

This pool went into a coma under the blow from the Justice Department. It did not die. It was revived in December 1933 as a proposed code under the N. R. A., and came close to becoming a law under that banner.

During the N. R. A. days our marketing business was in continual jeopardy. For example, on February 1, 1934 the Oil Administrator, Mr. Ickes, signed a new code ruling, which, quite oblivious of existing commercial contracts, prohibited discounts by wholesale distributors to commercial consumers on a quantity basis. The ruling also established a flat tank wagon price at not more than 2 cents below the service station price for an equivalent product. On February 3, the newspapers published the order. On February 5, as no major companies operating in our territory had taken any steps to put the new ruling into effect and as we had, we wired to our regional board for advice as to the validity of the ruling. In fact, receiving no reply, we wired twice.

Nothing happened to relieve the dislocation not only in prices but in commercial relations, until finally on February 24, Mr. Ickes approved an order cancelling by ukase every commercial consumer contract made since August 1933. To say that this order utterly demoralized an already confused market is to put it mildly. Not only were legal private contracts invalidated by the ruling but the ruling was retroactive.

The ruling was modined a few weeks later to the point of emasculation but none of us knew at that time. For all we knew, it was the law of the land permanently. We had too many rules, too many plans, too many proposed agree-

ments. Many of them if carried through would have ended our existence and the existence of most other independent marketers. Most of them were inspired by the Planning and Coordinating Committee, the major-company-staffed board of strategy.

During the last year of this rule the Petroleum Administration Board issued an average of one new law every two days, such a stream of regulations that not even the expanded office of that board could figure which way the current was flowing. Interpretations by the handful assailed us. Rules to govern the most minute detail of our operations came in almost every mail. Regulations not only requiring the posting of gasoline prices but rulings specifying the size of the figures used and the form of posting. Distilled water, compressed air, windshield wiping, and crankcase service became things of no intrinsic value whereas tire covers and parking service over night became things of value. All this by Administration fiat at the suggestion of the Planning and Coordination Committee. Many of these regulations were issued one day—cancelled the next.

Reference to this would be meaningless if out of the same law had not come the East Texas Buying Pool and Proration.

EAST TEXAS BUYING POOL

During 1933 we had been purchasing gasoline, fuel oil and other finished oil from independent refiners in the East Texas field. We had been moving this oil North along the Atlantic seaboard, or selling it f. o. b. at our leased terminal at Houston. In December 1933 the Oil Administration became a convert to the idea of a buying pool—a combination of major companies that would purchase at a price higher than the then market a large quantity of the gasoline made by East Texas refiners and distribute this gasoline throughout the marketing facilities of these same major companies.

On May 8, 1934 the Planning and Coordination Committee passed a resolution ostensibly to promote the welfare of the oil industry which, after pointing out that "whereas at all times even when total supply and demand are apparently in balance there are quantities of gasoline in various locations which do not readily find a PROPER market channel" It recommended that 29 certain major companies and subsidiaries of major companies should purchase not less than 3% of the gasoline sold by each of these companies during that month from refining companies not included in this group. The companies were instructed to report their progress and purchases to the Planning and Coordination Committee. During the week preceeding this agreed upon collusive buying the price of gasoline in East Texas was 3½ cents f. o. b. tank cars. By the 24th of May, or 16 days after this agreement was reached, the price had been increased to 4¼ cents per gallon. This gasoline even at the top price finally reached was not purchased at a price higher than the real value of gasoline in relation to the price of crude oil. However, the companies involved in the buying pool had neglected carelessly, or deliberately, to raise the prices in the distributing markets throughout which this gasoline would be sold. For example, the price of gasoline in tank cars in New York harbor areas prior to this had been for the preceding month 6¼ cents per gallon. After the buying pool had increased the price from ¾ to ¾ of a cent in the producing area, the tank car price remained 6¼ cents. At a price of 6¼ cents per gallon tank car gasoline purchased at 4¼ cents per gallon in Texas could not be resold without a substantial loss to the purchaser. This gasoline, a small part of the sales volume of the major company pool members, was the principal supply of many independent distributors. By purchasing this supply at a high price the pool buyers, including the Oil Administration, could accomplish two things: i. e., they reduced the supply available to independent distributors and raised the price these independent distributors must pay. By maintaining the same retail prices in the areas where this oil was to be marketed they made a perfect squeeze play. If the prices prior to this buying pool were established by the workings of the laws of supply and demand, clearly the prices after the pool indicate outside influence and rather definite tampering with these laws.

Lest you think that we are crying about milk spilt five years ago, we would like to say that the same squeeze play goes merrily along today. The theory of operation has changed. The result is the same. The theory of buying pools as regulators has been to a large extent dropped by the scorched fingers that picked up this plan. The theory now is price control of the production. For the results over the past few years and again using New York as indicative of the general price situation (because New York City and its contiguous territory represents 37% of our country's total consumption of gasoline) we would call your attention to the

fact that taxi cab companies in that city have been buying gasoline leaded to 70 octane (the same quality you buy under a brand name for your own Rolls Royce or Cadillac or Ford) delivered to the private garages of these companies which garages may house 5 cabs or 100 cabs at a price, exclusive of sales taxes, of 6½ cents a gallon. This gasoline comes from some refinery at the gulf and doesn't fly to the taxi cab garage on Prince Houssian's Magic Carpet. It flies to New York at a speed of eight or ten miles per hour on an ocean going tanker at a cost of 45 hundredths of a cent per gallon. As it was 60 Octane gasoline in its average original condition it had about a quarter of a cent—28 hundredths to be more exact—worth of lead added to it to equal the quality which all taxi cab companies require but fortunately did not have to pay for. Insurance and losses during shipping added another one-tenth of a cent to its cost. Terminaling charges in New York Harbor including handling losses and selling costs added another one-half cent. One-fifth of a cent a gallon was expended barging from an ocean terminal to a metropolitan New York barge terminal where the handling and losses cost an additional one-quarter of a cent. From that terminal it must be trucked through congested traffic of New York at a conservative cost of three-quarters of a cent per gallon. To none of these costs has any overhead been applied yet there was expended in overhead to get this gallon of gasoline to the cab company and collect after a generous waiting period the purchase price therefore of at least one-half cent a gallon. These costs add up to a fraction of over three cents per gallon without providing for any profit. Therefore, just to break even this gasoline delivered to a Bronx taxi cab garage at 6½ cents a gallon would have to be purchased at the gulf at less than 3½ cents a gallon. Please bear in mind that this taxi cab operator buys unbranded gasoline for his is a market normally open to independent refiners who do not rely on high advertising costs, tremendous sales forces and the extremes of overhead expense to market their products. In other words, he represents the man who presumably buys values but not advertising and is therefore the normal customer of the independent refiner.

In the old Oil Code the Oil Administration determined that the fair value to pay for gasoline in East Texas was a price on a ratio of 18½ cents to one on the price of crude. That is, when crude oil sells for a price of 18½ cents per barrel, gasoline should sell at a price of one cent per gallon. Then this taxi cab gasoline therefore netting a price in the gulf on board ship at 3½ cents per gallon, the crude oil from which it was produced should sell at slightly over 62 cents per barrel at the gulf or should have a posted price in East Texas of about 44½ cents per barrel. The posted price over the past few years had averaged about \$1.15 which, after allowing for this 18½ to one formula would mean that gasoline would bring over seven cents a gallon in tank steamers at the gulf. As a matter of fact, this 18½ to one ratio was based on successful operation of rather inefficient topping plants and probably modern economical cracking equipment is successfully operated on a more moderate ratio. Probably a refiner can pay today 24 times the per gallon price of the gasoline for a barrel of the crude. He cannot afford however to pay a ratio of 40 to one which he must if he operates today and sells to the New York buyer we have been discussing.

To go back to our 1934 pool, the father—although unacknowledged—of the later buying arrangements. We protested this 1934 pool to the office of the Oil Administrator and to the Attorney General. The Oil Administrator's office gave us no understanding nor sympathy. The answer being that the Oil Administrator was interested in proration and that if proration made it impossible for the independents to buy oil from producers surely the major oil companies, in the goodness of their heart would be willing to sell oil to the independents so affected. Our protest to the Attorney General met with more sympathy, perhaps because of the result of the legal and economic consequences resulting from such an oil pool. For a little while, we naively thought we would secure aid there. We were certainly not optimistic after the chairman of the Oil Administration Board told us in the presence of the Assistant Attorney General that he recognized that the plans of the Petroleum Administration Board tended to create monopolies (Mr. Fahy said that in connection with crude oil production control) but that the Petroleum Administration had a right to create such a private monopoly in the oil business and in fact had a right to give this monopoly to Mr. Rockefeller. This looked like an admission of policy on which we could obtain some help from the Department of Justice. But we didn't get any help.

When the pool went into business we went out of business—as far as our then operations were concerned. The N. R. A. is now history. The court at Madison has said that the resultant pool, continued after the N. R. A., was criminal. It must be clear now that the Government pool was just as monopolistic in its effect.

It did us little good at that time to look forward to this inevitable court decision. We, like the ducky whose lawyer said he "couldn't be put in jail", were actually behind the bars.

EASTERN STATES SITUATION IN THE EARLY PART OF 1935

We could not buy $4\frac{1}{4}$ cent gasoline in East Texas and sell $6\frac{1}{4}$ cent gasoline in New York and no other company could do so. However, the companies who were buying 3% of their requirements at $4\frac{1}{4}$ cents and who were subsidizing their refining and marketing through pipe lines and crude oil profit could with this 97% of their own business, continue their usual undisturbed course. We clearly could not continue to buy the products of East Texas refiners and sell these products in open markets. There were still open markets but there was no open supply. We were, therefore, against our will, forced into arranging to do our own refining, purchasing such raw materials as could be refined or further refined at a profit. We therefore, arranged to purchase a refinery in Houston, Texas and changed our operations so that we could manufacture our own finished products. We entirely modernized the refinery so purchased and built at a cost of about three-quarters of a million dollars a thoroughly modern cracking plant.

The relation between the price of crude and the prices of finished products justified the investment of this money, based on the operation of the highly efficient plant which we built. This operation permitted us to manufacture at the gulf coast and ship the products to the Atlantic seaboard and retain the business that we had there, and allowed us to make a reasonable profit. Conditions remained reasonably satisfactory from a profit standpoint throughout 1935, 1936 and the first half of 1937. The history of price changes of crude oil and finished products during the years 1935 through September 1939, both inclusive are tabulated in the attached schedule of prices and refined products. They are also shown graphically in the charts on pp. 7578 and 7579, *infra*.

THEORY AND EFFECTS OF PRORATION

If, the Congress believes that, in the long run and for the greatest number, monopoly is harmful; if the Congress believes it is right and proper that small units of industry, operating efficiently, economically and producing and delivering at the lowest cost to the ultimate consumer, shall exist under our American plan of living, then Congress must consider proration and the inevitable development of monopoly thereunder.

The major company advocates of proration invariably speak of conservation and proration as synonymous. They speak of proration to preserve the great oil industry from waste, etc., they wave the flag and say that our oil reserves must be saved for our national defense needs. Lets consider the last argument first.

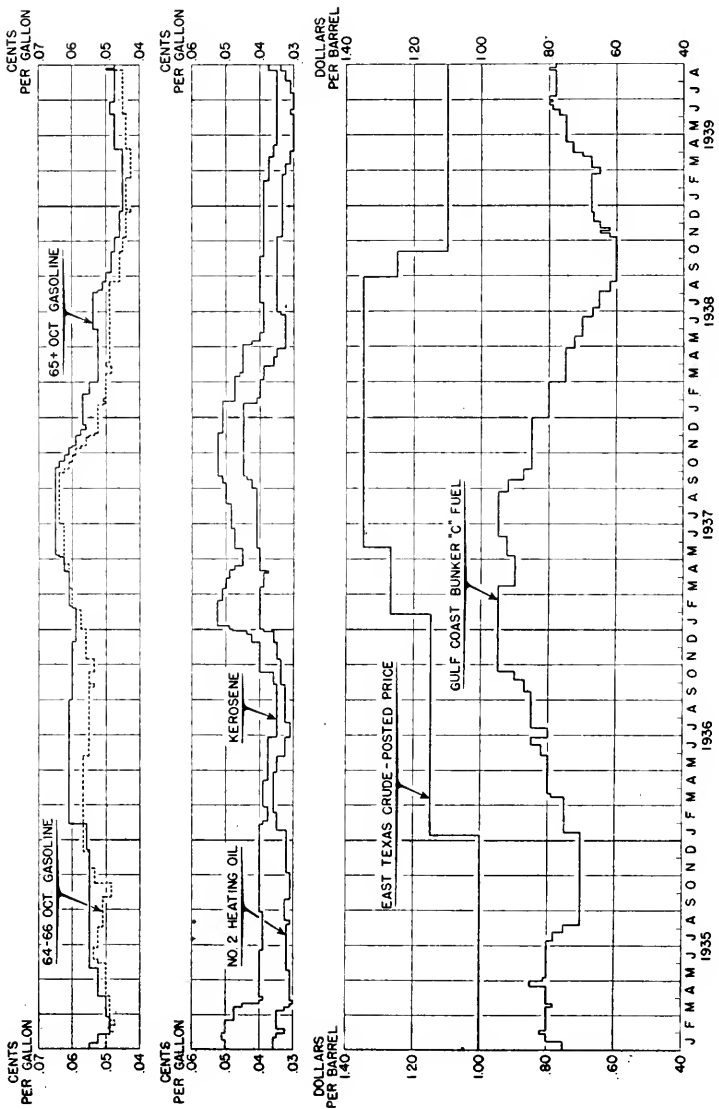
The Thomas Oil Bill (S. 3495—of the Spring of 1934) had an inspiringly patriotic statement of purpose to that effect. It held out the need of conserving our oil for defense against foreign aggression. Then it went on to say that the Secretary of the Interior was required "by this law"—to *restrict* imports. If there is the slightest need to conserve our oil for national defense we clearly should prohibit *exports*, import every barrel available from foreign fields and reduce domestic production to the minimum required for carefully rationed domestic need. The Congress can decide facts in regard to national defense needs. The insertion of the question in the legislation referred to was not an honest effort to preserve our country but was obviously an effort to hide selfish interests behind the folds of the flag.

The Connally Act, passed in 1935, was created to punish a man for shipping, into interstate commerce, oil from his well in excess of what he was allowed by state law to produce. The assumption must have been that his allowable was based on conservation. The assumption must have been that by producing more than his allowable he was committing a crime against sovereign people in the willful wasting of its collective heritage. But that assumption is wrong. He is a criminal today, with all the moral stigma that the word implies, because he has produced more than his quota in relation to an estimated consumer demand, regardless of how efficient are his methods of recovery. He has threatened, not the national welfare but the artificial price of crude oil. Thus a threat against price fixing becomes a crime in the United States. If that is the case, and it is the case, some law, some program, some intention somewhere along the line is being abused.

The present control of the production of crude petroleum and the consequent power to maintain an artificial price has been made possible by the enacting of

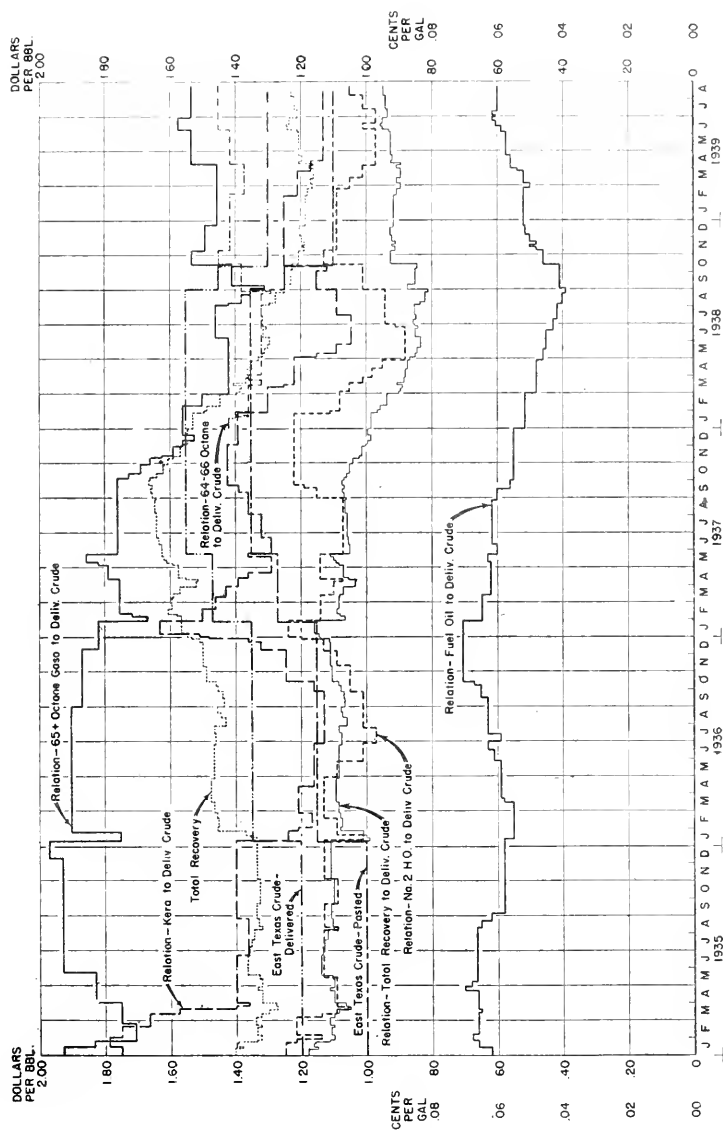
PRICES OF EAST TEXAS CRUDE AND REFINED PRODUCTS

JANUARY 1, 1935-SEPTEMBER 1, 1939



EASTERN STATES PETROLEUM CO., INC., HOUSTON, TEXAS

EAST TEXAS CRUDE PRICES AND RELATIVE VALUES OF REFINED PRODUCTS



the several so called conservation laws, the laws which permit the proration of crude oil production among the several oil producing states; laws which permit each state after due negotiations among its sister states to allocate to each well the specific number of barrels it may produce within a given time.

These proration laws are called conservation laws because they were enacted in conservation's name; but they have little to do with conservation. They have to do with the control of the price of crude oil, through the simple device of controlling its production. Conservation of the nations crude oil, so carefully stated in the preamble as the purpose of each and every one of these laws, has become purely incidental to the whole program of proration. The program, instead, is being used to promote private monopoly.

No one can dissent with the principles of conservation. The reckless waste of any natural resource cannot be too forcibly condemned. This country has seen vast forest areas cut down to recover only a few board feet of lumber. It has seen millions of cubic feet of natural gas dissipated into thin air. The waste of coal and its by-products is historic.

The principle of conserving petroleum production against physical waste is a right principle. Efficient methods of recovery of the most oil from a given reservoir are the foundations of oil conservation. Conservation involves the technical problems of utilization of reservoir energy, it involves analysis of sand conditions, reservoir pressures, well spacing and numerous physical considerations which vary from field to field. In the relation which these and many other physical factors bear to the specific reservoir itself lies the essence of efficient recovery, recovery without waste which is conservation.

As to the above-ground waste of crude, that is mostly a figment of the journalistic imagination. The dramatic picture of rivers of oil running down ditches; of fresh water rivers covered with a blazing seum of oil from some uncontrolled flush field, are all hang-overs from the earliest days of oil production when fields came faster than tanks, for storage, and pipelines to market, could be built. These are sediments of history that blemish the simple mind.

As a matter of fact, probably the above-ground waste of today rests almost entirely with the ultimate consumer for whom the oil producer has no responsibility and over whom he has no control.

Honest conservation laws are good laws for in spite of the great technical strides made by the oil industry toward efficient recovery of crude, in spite of the strong pressure springing from enlightened self interest within the industry condemning wasteful production, good conservation laws would always act as a deterrent against one man's temptation wastefully to exploit his discovery in the interests of intoxicating profits.

Consumer demand even today, if it is low enough, might have some haphazard bearing on conservation but conservation against physical waste has nothing to do with consumer demand. Conservation is primarily a technical problem, whereas proration as it operates today is purely a market problem, a price problem. What little accidental physical control of individual wells has resulted from proration has been more offset by an unprecedented and wasteful increase in well drilling. In short, the proration program is based entirely on making the oil producing end of the closely integrated industry sufficiently profitable to those who control it, to make their refinery and marketing losses seem negligible; losses sustained by selling below independent refiner and marketer competitors' costs. It isn't based on conservation at all. So long as these laws, once so enthusiastically supported by the public and the Congress are used to control the price of crude oil, monopoly is inevitable.

The proponents of "Proration" say that under restriction of flow from wells the greatest ultimate yield will be obtained. There is no slightest evidence to bear out this theory. We do know that in the East Texas field if we had not had proration that one third of the present number of wells would have been adequate to produce all the oil from this field. Ten thousand useless wells have been drilled in the name of "conservation"—which according to my dictionary means the prevention of or elimination of waste. 10,000 surplus wells at \$10,000 each figures \$100,000,000 wasted, deliberately wasted, in the name of conservation.

Dr. Joseph E. Pogue, a recognized authority on the petroleum industry has the intellectual honesty and economic sagacity in spite of his personal allegiance, to advise that the industry cease to confine itself to proration as a price fixing device, with the danger of being more and more controlled by government. He argues that the potential production of the more efficient producing properties is so near actual market demand that the time has come for the industry to use the proration machinery for honest conservation against waste.

The very fact that the stripper well is not prorated, that it has been kept much alive only by artificial high prices for crude, once again shows how little proration has to do with conservation. Gearing crude oil prices to stripped well production costs isn't conservation. Stripper well oil is beautifully conserved if it's left in the ground. Stripper wells were once flush fields. They have long since played out. They are largely in the hands of small owners who use the oil only to augment an income from other sources, or to hold leases which may some day undergo deeper development. That they present a social dilemma there is no doubt. What to do with them is a problem similar to the problem of the sub-marginal farm of today. Certainly to keep them running in order to insure high crude prices to the low cost producing units is not conservation anymore than keeping the sub-marginal farm in production to force a high level of wheat prices is conservation.

Proration as it works today makes new development possible only to the large company. The wild-catter, the farmer who wishes to drill on his own land cannot gamble on an investment which under proration, will require 7 to 10 years amortization.

Clearly the price of crude oil has nothing to do with waste. If crude sells for \$10.00 a barrel and the Maine farmer pays \$0.50 a gallon for gasoline there might be a cry of profiteering but no cry of waste. If crude sells for \$0.75 a barrel and the Maine farmer buys gasoline for \$0.10 a gallon, he may cultivate potatoes at less expense for tractor fuel but there is no waste. Low or high prices may transfer wealth from one man to another—they have absolutely nothing to do with waste.

The major companies with their integrated operations know all this. But Proration under its real name of "price fixing" would not gain popular support. There must be the banner of conservation. We all approve of conservation. The waste of gas pressure, the destruction of producing sands through careless flooding are wastes—improper in a social sense. But when a number of states get together under an oil compact, divide the loot of oil production between themselves, then divide the allowable of each State by fields and wells as political expedience may dictate—or even purely by an equal arithmetical allowance per well—without regard to gas pressures, water, sands or any other factor, then, gentlemen, we have no conservation, but price fixing. The records of the meetings of the State committees and the interstate compact committee will show this story. It is too well known to need detailed explanation.

Proration as it is sometimes described "limitation to market demand" is Price Fixing. And the Fixing of the Price of raw material where the refining and marketing are subject to the laws of supply and demand produces inevitably monopoly—either public or private.

Furthermore, proration "Price Fixing" is an illegal transfer of the taxing power from the state and federal governments. It permits the state school system of Texas to levy a tax upon the little red school house in Massachusetts. It permits the State of Oklahoma to tax for road building the oyster grower of the Eastern Shore.

Through the operation of the state severance tax based on the percentage of the posted price of crude, it is to the school system's advantage to maintain a high price. It is to the interest of the states to let them maintain it.

In the long run proration permits the major oil companies in oil producing states to tax, without appeal, the consumer throughout the nation.

Proration is the monopoly production policy. We cannot buy American crudes at the artificially high prices fixed by our government proration policy and sell the products therefrom in world markets susceptible to the laws of supply and demand and remain solvent. At no time during the first 8 months of 1938 has the world price of finished products as reflected in the wholesale price of those products at the U. S. Gulf been equal to the artificially fixed price of American crude plus even the lowest refining costs of modern low cost refiners.

THE EFFECTS OF PIPELINE OWNERSHIP BY MAJOR OIL COMPANIES

For the past 10 years the major refining companies have been subsidizing their refinery and marketing operations from the profits of their pipe line operations, the profits of their domestic crude production, in some cases from the profits of their foreign crude and refinery properties, and from surpluses. The part that pipe line profits play in the oil industry today is that of subsidy to monopolistic practices. The important trunk line, common carrier pipe lines are all affiliated with one or more of the large major oil companies. It costs the independent

pipe line user 17 and a half cents a barrel to bring his oil from East Texas to his refinery at the Gulf. It is estimated that the cost to the producer or refiner who controls that pipe line the costs are about five cents.

The generous profits of these pipe lines serve to compensate the companies who control them for losses sustained in other branches of the trade. Through the subsidy from these profits the major companies can afford to meet the most efficient competition from the non-integrated independents.

A typical example of the way the ownership of pipe lines benefits an integrated company is illustrated by the Continental Oil Company in the June 1939 issue of the magazine "Fortune". It was an article describing the operations of this company. In this article it was stated that during 1938 the 9 refineries operated by the company showed a profit of \$500,000.00. The retail marketing division of their business during the same period showed a net loss of \$2,000,000.00. Continental owns a 29% interest in the Great Lakes Pipe Line Company, a gasoline line from the Mid-Continent field running north to the consuming cities of the middle west. Continental's 29% interest in this line netted them a profit of \$1,600,000.00, so that the net result of the refining and marketing operations about broke even. However, through the profits on the pipe lines they were able to market their products at less than cost, thereby reducing marketing competition from independents who shipped by tank car.

The following is an extract from an editorial appearing in the August 14, 1939 issue of the Fort Worth Star-Telegram. This editorial appeared a few days after the reduction of about 20¢ per barrel in the posted price of crude oil.

"The chief responsibility for the last price cut rests on the shoulders of the Standard Oil Company of New Jersey which controls Humble of Texas, Standard of Louisiana, and Carter Oil Company, Inc., operating chiefly in Oklahoma and Illinois. Within recent weeks it elected to block the efforts of Harry F. Sinclair of the Consolidated Oil Company, followed by 19 of 22 companies for stabilizing of the business at the levels which existed before last week's cuts by a half-cent per gallon raise in gasoline prices. The judgment of the entire industry was vetoed by the Standard of New Jersey, which carried along with it two companies which were at its mercy in their operating territory. The New Jersey's size enabled it to block the efforts of the rest of the industry which would have protected crude prices against what is now happening. When, on this failure, the first crack appeared in the crude price structure, the Standard of New Jersey threw its entire weight on the side of economic destruction.

"This brings up the point of what the people of the oil States, where all business is hurt by this abuse of power by a few, can do about it. There appears to be only two ways open: The oil States can open up, as the authors of the present conditions seem to desire, or they can close down until the price raiders howl for crude supplies.

"The suggestion has been made by Railroad Commissioner Sadler of Texas, and concurred in by Commissioner Thompson, who is also chairman of the Interstate Oil Compact Commission, that all production in the six Southwestern States be shut down for 30 days. Radical as the remedy proposed may be, it commends itself as an effective vehicle for self-defense by the oil States. It seems obvious, however, that what is good for the six Southwestern oil States would be good for all the oil States, with Texas in the proration spotlight, have been holding an umbrella over the whole oil producing industry for many years. This service can not be so effective, either in Texas' own interest or in the interest of the other oil States as would be a united front by all for protecting the interest of all.

"The oil States, by prompt and effective cooperation of this nature, could withhold from the market more than 100,000,000 barrels of oil in the 30-day period, and—what is strategically important—the greater part of the hold-out would be in the territories from which the instigators of the price cuts draw their supplies. And if the sworn statements they made to the Railroad Commission last December on their stocks were correct, their tanks would be dry before the 30-day period was ended. Hardly any of the companies have enough oil to carry through the period suggested; there is reason to believe some of them would be out of oil in a little more than a week.

"This remedy is obviously a drastic one which is recommended by the fact that it would get action quickly. A long-range remedy is for the independent oil industry to organize jointly with the independent business men and bankers of the Southwest and undertake a program of seeking legislation, both State and national, which will forever end the pipeline monopoly which enables a handful of people to fix the terms on which the oil industry will be permitted to exist, and also to plug the holes through which the present great supply of foreign oil is

being brought into this country to compete with the highly-taxed oil produced here under conditions which provide both well-paid workmen and well-paid land-owners."

The following is an extract of an article appearing in the August 28, 1939 issue of the Fort Worth Star-Telegram.

"The recent reduction in the price of crude oil calls for some serious analysis of the situation.

"It proves that under the monopolistic set-up in the oil industry:

"1. That the reduction in the output of oil will not hold up the price to a figure under which producers can continue in the business of producing crude oil.

"2. That the efforts of the independent producers to curtail their production to a point where the major buyers will pay a fair price is unavailing.

"3. That with monopoly in the saddle, the States are unable to conserve their natural resources except by turning the business over entirely to monopoly and the business regulated as a public utility, which would mean the elimination of all independents from the oil business.

"4. That monopoly exists by reason of its control of the pipe lines, for it is well known that fair competition can not exist when an organization has control of the transportation of the commodity in which it deals.

"The law prohibits the taking of rebates from transportation facilities. It has been known for a century that the competitive system under the law of supply and demand which is a basic principle of our democracy, can not exist when an organization has control of the transportation of the commodity in which it deals. These rebates are illegal because the control of the pipe lines by the integrated companies creates a monopoly in violation of the Sherman Act. However, if this be questioned, then Congress should speedily pass an act divorcing pipe line companies from shipper ownership and prohibiting pipe line companies from owning the oil or its products transported, or accomplishing the same purpose through a thin subterfuge of owning or controlling, direct or indirectly, the stock of the pipe line company. In other words, put them under the same restrictions as the railroads.

"These integrated companies need not make any profit on the oil which they produce nor on the oil they refine nor on the oil they market and still can pay huge dividends.

"Were you ever at a refiner's railroad rate hearing? If not, it may interest you to know that it is a great gathering place to meet every executive of the pipe line companies who are so ardent in their support of the railroads that they insist on the highest possible rate being charged for the transportation of crude and refined products by rail. It may be that they figure in this way, that they can collect more freight through their pipe lines and make it just that much tougher on the independent refiner, which, or course, reacts on the independent producers to the same extent that bending the elbow raises the wrist."

The greatest number of independent refineries are in the Oklahoma, Kansas and North Texas districts. These refineries for the past three years have been endeavoring to have rail freight rates brought to a closer parity with the rates charged by gasoline pipe lines. They have been unsuccessful in having these rates reduced. As a matter of fact, rates from these three shipping areas today are higher while oil rates in other sections of the country are substantially lower.

The following tabulation shows the rail freight rate per gallon to various representative destinations; the costs per gallon to ship gasoline to the same point moved by pipe line and on or near the market and the costs of transportation per gallon to the same destination when shipped by gasoline pipe line to or near the market (these pipe line costs are not figured on the pipe lines' public rates but are costs based on sworn figures of pipe line operations filed with the Interstate Commerce Commission).

The figures show the saving per gallon; the saving per 8000 gallon tank car and the saving per 42-gallon barrel enjoyed by the Majors at various representative points which are typical of the entire marketing territory. The Majors in their greed for gallonage to market crude oil are fiercely competing with each other throughout this vast territory and the Independent Refiner is being ground down between the upper and nether millstone; unless transportation costs are in some way equalized, the passing of the Independent Refiner is inevitable. Since these figures were prepared a new pipe line is being built from Kansas City to Omaha. Another is being built from St. Louis to Chicago, and it is announced construction will start soon on one from Superior, Nebraska, to Sioux City, Iowa.

	Costs per gal. to Destination shown	Crude Pipe Line & Gasol. Pipe Line Advantages per gal	Crude Pipe Line & Gasol. Pipe Line Advantages per 8,000-gal. Tank Car	Crude Pipe Line & Gasol. Pipe Line Advantages per 42-gal. Barrel
1. Kansas City, Mo.:				
Via Rail.....	.02112			
Via Pipe Line (Crude).....	.00283	.01829	146.32	.76818
Via Pipe Line (Gaso.).....	.00436	.01676	134.08	.70392
2. Jefferson City, Mo.:				
Via Rail.....	.02475			
Via Crude Pipe Line to Kansas City Rail beyond.....	.01473	.01002	80.16	.42084
Via Gasol. Pipe Line to Kansas City Rail beyond.....	.01627	.00848	67.84	.35618
3. St. Joseph, Mo.:				
Via Rail.....	.02112			
Via Crude Pipe Line to Kansas City Rail beyond.....	.00943	.01169	93.52	.49098
Via Gasol. Pipe Line to Kansas City rail beyond.....	.01096	.01016	81.28	.42672
4. Lincoln, Nebraska:				
Via rail.....	.02541			
Via Crude Pipe Line to Kansas City Rail Beyond.....	.02063	.00478	38.24	.20076
Via Gasol. Pipe to Omaha Rail Beyond.....	.01768	.00773	61.84	.32466
5. St. Louis, Mo.:				
Via Rail.....	.02343			
Via Crude Pipe Line.....	.00424	.01919	153.52	.80598
Via Gasol. Pipe Line.....	.01070	.01273	101.84	.53466
6. Omaha, Neb.:				
Via Rail.....	.02541			
Via Crude Pipe Line to Kansas City Rail Beyond.....	.02063	.00478	38.24	.20076
Via Gasol. Pipe Line.....	.01073	.01468	117.44	.61656
7. Keokuk, Iowa:				
Via Rail.....	.02541			
Via Crude Pipe Line to St. Louis Rail Beyond.....	.02004	.00537	42.96	.22554
Via Gasol. Pipe Line to Des Moines Rail Beyond.....	.02346	.00195	15.60	.08190
8. Des Moines, Iowa:				
Via Rail.....	.02541			
Via Crude Pipe Line to Kansas City Rail Beyond.....	.02063	.00478	38.24	.20076
Via Gasol. Pipe Line.....	.00813	.01728	138.24	.72576
9. Mt. Vernon, Ill.:				
Via Rail.....	.02805			
Via Crude Pipe Line to St. Louis Rail Rail Beyond.....	.01414	.01391	111.28	.58422
Via Gasol. Pipe Line to St. Louis Rail Beyond.....	.02051	.00754	60.32	.31668
10. Sioux City, Iowa:				
Via Rail.....	.02805			
Via Crude Pipe Line to Kansas City Rail Beyond.....	.02393	.00412	32.96	.17304
Via Gasol. Pipe Line to Omaha Rail Beyond.....	.02063	.00742	59.36	.31164
11. Decatur, Ill.:				
Via Rail.....	.02739			
Via Crude Pipe Line to St. Louis, Rail Beyond.....	.01285	.01454	116.32	.61068
Via Gasol. Pipe Line to St. Louis, Rail Beyond.....	.01921	.00818	65.44	.34356
12. Cedar Rapids, Iowa:				
Via Rail.....	.02739			
Via Crude Pipe Line to Chicago, Rail Beyond.....	.02287	.00452	36.16	.18984
Via Gasol. Pipe Line to Des Moines, Rail Beyond.....	.02074	.00665	53.20	.27930
13. Peoria, Ill.:				
Via Rail.....	.02739			
Via Crude Pipe Line to Chicago, Rail Beyond.....	.01697	.01042	83.36	.43764
Via Gasol. Pipe Line to St. Louis, Rail Beyond.....	.02263	.00476	38.08	.19992
14. Ft. Dodge, Iowa:				
Via Rail.....	.02805			
Via Crude Pipe Line to Kansas City, Rail Beyond.....	.02393	.00412	32.96	.17304
Via Gasol. Pipe Line to Des Moines, Rail Beyond.....	.01674	.01131	90.48	.47502

	Costs per gal. to Destination shown	Crude Pipe Line & Gasol. Pipe Line Advantages per gal	Crude Pipe Line & Gasol. Pipe Line Advantages per 8,000-gal. Tank Car	Crude Pipe Line & Gasol. Pipe Line Advantages per 42-gal. Barrel
15. Mason City, Iowa:				
Via Rail	.02937			
Via Crude Pipe Line to Kansas City, Rail Beyond	.02593	.00344	27.52	.14484
Via Gasol. Pipe Line to Des Moines, Rail Beyond	.01933	.01004	80.32	.42168
16. Evansville, Ind.:				
Via Rail	.03234			
Via Crude Pipe Line to St. Louis, Rail Beyond	.01815	.01419	113.52	.59598
Via Gasol. Pipe Line to St. Louis, Rail Beyond	.02452	.00782	62.56	.32844
17. Danville, Ill.:				
Via Rail	.02805			
Via Crude Pipe Line to St. Louis, Rail Beyond	.05144	.01261	100.88	.52962
Via Gasol. Pipe Line to St. Louis, Rail Beyond	.02181	.00624	49.92	.26208
18. Dubuque, Iowa:				
Via Rail	.02937			
Via Crude Pipe Line to Chicago, Rail Beyond	.01957	.00980	78.40	.41160
Via Gasol. Pipe Line to Chicago, Rail Beyond	.02522	.00415	33.20	.17430
19. Sioux Falls, S. D.:				
Via Rail	.03069			
Via Crude Pipe Line to Kansas City, Rail Beyond	.02723	.00346	27.68	.14490
Via Gasol. Pipe Line to Des Moines, Rail Beyond	.02664	.00405	32.40	.17010
20. Freeport, Ill.:				
Via Rail	.02937			
Via Crude Pipe Line to Chicago, Rail Beyond	.01497	.01440	115.20	.60480
Via Gasol. Pipe Line to Chicago, Rail Beyond	.02063	.00874	69.92	.36708
21. Indianapolis, Indiana:				
Via Rail	.03366			
Via Crude Pipe Line to Chicago, Rail Beyond	.02086	.01280	102.40	.53760
Via Gasoline Pipe Line to St. Louis, Rail Beyond	.02640	.00726	58.08	.30492
22. Chicago, Ill.:				
Via Rail	.02805			
Via Crude Pipe Line	.00636	.02169	173.52	.91098
Via Gasol. Pipe Line	.01202	.01603	128.24	.67326
23. Madison, Wis.:				
Via Rail	.03201			
Via Crude Pipe Line to Chicago, Rail Beyond	.01627	.01574	125.92	.66108
Via Gasol. Pipe Line to Chicago, Rail Beyond	.02192	.01009	80.72	.42378
24. St. Paul, Minn.:				
Via Rail	.03201			
Via Crude Pipe Line to Chicago, Boat to Superior, Wis. Rail Beyond	.01659	.01551	124.08	.65142
Via Gasoline Pipe Line	.01285	.01916	153.28	.80472
25. Granite Falls, Minn.:				
Via Rail	.03201			
Via Crude Pipe to Chicago, Boat to Superior, Wis. Rail Beyond	.02640	.00561	44.88	.23567
Via Gasol. Pipe Line to Minneapolis, Rail Beyond	.02676	.00525	42.00	.22050
26. South Bend, Ind.:				
Via Rail	.03696			
Via Crude Pipe Line to Chicago, Rail Beyond	.01497	.02199	175.92	.92388
Via Gasol. Pipe Line to Chicago, Rail Beyond	.02063	.01633	130.64	.68586
27. Milwaukee, Wis.:				
Via Rail	.03003			
Via Crude Pipe Line to Chicago, Rail Beyond	.01297	.01706	136.48	.71662
Via Gasol. Pipe Line to Chicago, Rail Beyond	.01862	.01141	91.28	.47922

	Costs per gal. to Destination shown	Crude Pipe Line & Gasol. Pipe Line Advantages per gal	Crude Pipe Line & Gasol. Pipe Line Advantages per 8,000-gal. Tank Car	Crude Pipe Line & Gasol. Pipe Line Advantages per 42-gal. Barrel
28. Ft. Wayne, Ind.:				
Via Rail.....	.03696	-----	-----	-----
Via Crude Pipe Line to Chicago, Rail Beyond.....	.01827	.01869	149.52	.78498
Via Gasol. Pipe Line to Chicago, Rail Beyond.....	.02393	.01303	104.24	.54726
29. St. Cloud, Minn.:				
Via Rail.....	.03597	-----	-----	-----
Via Crude Pipe Line to Chicago, Boat to Superior, Wis. Rail Beyond.....	.02511	.01086	86.88	.45612
Via Gasol. Pipe Line to Minneapolis, Rail Beyond.....	.02145	.01452	116.16	.60984
30. Eau Claire, Wis.:				
Via Rail.....	.03597	-----	-----	-----
Via Crude Pipe Line to Chicago, Boat to Superior, Wis. Rail Beyond.....	.02452	.01145	91.60	.48090
Via Gasoline Pipe Line to Minneapolis, Rail Beyond.....	.02405	.01192	95.36	.50064
31. Green Bay, Wis.:				
Via Rail.....	.03531	-----	-----	-----
Via Crude Pipe Line to Chicago, Boat Beyond.....	.00884	.02647	211.76	1.11174
Via Pipe Line to Chicago (Gasol. P. L.) Rail Beyond.....	.02452	.01079	86.32	.45318
32. Wausau, Wis.:				
Via Rail.....	.03531	-----	-----	-----
Via Crude Pipe Line to Chicago, Rail Beyond.....	.02617	.00914	73.12	.38388
Via Gasol. Pipe Line to Chicago, Rail Beyond.....	.03182	.00349	27.92	.14658
33. Toledo, Ohio:				
Via Rail.....	.04092	-----	-----	-----
Via Crude Pipe Line.....	.00778	.03314	265.12	1.39188
Via Gasol. Pipe Line to Chicago, Rail Beyond.....	.02782	.01310	104.80	.55020

The oil pipe lines are not now and never have been operated truly as public carriers.

Such a set-up constitutes a system of rebates as vicious as the old railroad rebates which were in effect before public pressure and law forced the railroads to become in fact public carriers with equal rates to all. The pipe lines today are what the railroads were to the shipper-owners of coal mines—instruments toward monopoly which precluded outside competition on an equal footing.

There is no free enterprise possible in the oil industry as long as integrated units in the oil industry control and operate for their sole benefit the most vital transportation in the industry.

EASTERN STATES SITUATION IN THE FIRST PART OF 1938

You will note from the tabulation of oil prices and the charts mentioned above that in November 1937 the squeeze play began again in earnest. The price of crude (other crudes have followed East Texas which is used here as a barometer) has borne no relationship to the price of finished products nor to the available supply of crude. Texas, the principal producing state, during the period when prices of finished products have dropped has reduced its production through Saturday and Sunday shut-downs and other artificial methods so as to maintain an artificial and unwarranted price for crude. All refiners who buy their crude in the open market have lost money. Many independents have gone out of business. All have lost substantial portions of their assets and are in danger of failure. The major companies have lost money on refinery and marketing.

Any company that consistently refines crude posted at \$1.25 in the field and sells the gasoline refined from it at .03 and three eighths cents f. o. b. the gulf is losing money on its refinery and marketing operations. Yet the major integrated companies show substantial earnings each year. They are obviously making these earnings on production and pipeline transportation. They have also gained volume and percentage of business—have moved closer to complete (domestic) monopoly.

All of the fourteen independent refineries on the Gulf coast were dependent on the major oil companies for either supply of crude oil or for outlet for refined products. Speaking for ourselves, from January, 1938 up to the time of our Mexican contract, sales of gasoline to major companies represented 68% of our total sales of this product. One of the reasons that independent refiners are dependent on sales to majors is that the majors, through sales below cost, have taken away the market for free sales on the part of independents. Up to August, 1938, we were at most times so dependent for market outlets definitely, and at times for supply of crude oil.

It was this stringent domestic situation which led to our negotiation for Mexican crude oil. We began our operation on Mexican crude in August of 1938 after nine months search for American crude oils on which our thoroughly modern refinery could be run at a profit; after nine months of operation at a loss, during which period we saw our hard won assets disappear under the steady erosion of the hard rasp of monopoly.

As you will remember, expropriation by the Mexican Government of certain oil producing properties occurred on March 18, 1938. The properties so expropriated belonged to those British and American oil companies who refused to obey the Mexican labor laws also very similar to our Wage Act and Fair Wage Standard Act (the principal difference between the Mexican laws and our own being that while our Fair Wage Act calls for a present minimum wage of \$11.00 per week the Mexican Act calls for a minimum wage of about \$4.60 per week). The oil companies who complied with these labor laws retained their properties and are today operating their properties and shipping the products therefrom in the world trade, the principal destination being United States. At the time of expropriation the Mexican Government had considerable developed oil reserves of her own. Contrary to public assumption, not all the foreign controlled oil in Mexico was expropriated nor was all the oil in Mexico owned by foreign companies.

Of the properties expropriated about 80% in value belonged to the Royal Dutch Shell interests, (the greatest competitor of American oil interests in the world trade).

We did not want to purchase Mexican oil. Immediately after the expropriation decree the word was posted that it would be bad business to handle any Mexican crude. Before we made our contract to purchase this oil we were warned by the head of the Shell interests here that if we purchased any Mexican Crude, whether it was derived from wells owned and operated by the Mexican Government prior to expropriation or not, we would be put out of business in two months' time. After this warning we expected interference with our customers, interference with our necessary bank credits, intimidation of the brokers through whom we normally marketed our products. We met with this interference, this illegal restraint, from the Shell Company, to the serious damage of our business.

The purpose of this statement is to advise you on monopolistic practices in the oil business—not to discuss Mexican crude and our difficulties in operating on this product. We must, however, give you this story of our Mexican contract to make clear the desperate circumstances that caused us to take this step. Our plan was to import this crude to our refinery at Houston and sell the refined products exclusively to the world trade. This we still continue to do under a bonded manufacturing warehouse permit. Hence we offer no threat to the domestic market. In fact, we do not even fill the gap left by the considerable drop this past year in Mexico's usual oil exports.

As we have said, we reluctantly made a contract to purchase Mexican crude. We realized that if we did so we could not sell to the Major Companies who had been our large customers. We knew we could not sell to the Shell Company who had purchased almost all of the gas oil we had manufactured for the last two years; we had been warned, as we said before, by the great British-Dutch trust that they would put us out of business; we knew our broker friends would be afraid to deal with us.

We realized that not even the fact that we were buying unexpropriated oil would save us from this attack. We knew, of course, that in the Poza Rica field from which we were to obtain this crude there were never any American producers and that all the American major companies knew this. We knew that every American company which had had Mexican interests knew that the Mexican Government had owned a large and prolific portion of this Poza Rica field before expropriation and had drilled its own wells thereon and was producing from these wells at the time we made our contract the full 15,000 barrels which we required. We knew that we could prove legally that we were buying only non-expropriated oil.

However, we realized that might and not right was the factor we would have to consider. We realized that a great world combine, once launched upon a dog in the manger policy with regard to Mexico was not going to be overly magnanimous to any legitimate operator who might contribute to breaking the unofficial boycott they had laid down on Mexican crude oil.

If we could have purchased American crude, in view of this situation we would not have made this Mexican contract. We had, however, a Hobson's choice. We could not operate unless we bought Mexican crude; the Shell said they would not let us if we did.

With a refinery located in the very heart of the greatest oil producing area in the world we were forced to go outside for crude; with a modern cracking plant, of lower capital cost per barrel processed than those of our major company competitors, of much lower operating cost than these same major company plants, we could not sell our products at the prices made by these same high cost major company competitors and avoid bankruptcy.

Unreasonable, you say! Your committee knows that there is no scarcity of American crudes. At last September's Interstate oil compact meeting Earnest Blincoe of Kansas complained that although Kansas had a potential of 3,000,000 barrels a day her allowable was only about 175,000 barrels a day. Colonel Thompson of Texas at the same meeting said that the Texas allowable of 1,700,000 barrels a day was so far below her potential that there was cause to worry whether or not such a reduced production might not disturb the gas oil ratio and thus cause waste. The potential supply is greater than the demand. The Texas proration officials are begging the industry to reduce stocks viewing with alarm any drilling activities. The daily press tells of Saturday and Sunday shutdowns in the Texas fields to reduce the actual supply.

Proration is the monopoly production policy. We cannot buy American crudes at the artificially high prices fixed by our government proration policy and sell the products there from in world markets susceptible to the laws of supply and demand and remain solvent. At no time during the first 8 months of 1938 has the world price of finished products as reflected in the wholesale price of those products at the U. S. Gulf been equal to the artificially fixed price of American crude plus even the lowest refining costs of modern low cost refiners.

The growth of private monopoly is dangerous to our established form of government and the public welfare.

SUGGESTED SOLUTIONS OF THE PROBLEM

I believe there is a definite monopolistic control of the oil industry, partly by design—mostly as a result of ill-considered emergency federal legislation.

I suggest, as methods to eliminate this monopolistic control the following three alternatives:

1. Elimination of so-called proration which is simply price fixing and artificial limitation of supply, or,
2. Extension of Federal control and price fixing to include control of refineries and marketing, or
3. Elimination of price fixing by dissociation of oil production, transportation, refining and marketing, and particularly the elimination of interstate transportation by oil producing and refining companies.

Suppose the special privilege accorded large oil groups by proration were removed. Unrestricted production might mean more drilling, more independent refineries, more pipe lines, more service stations, more of everything than we will possibly need, but one thing is certain, there won't be waste. Prices of crude might drop. But if the American farmer buys gasoline at a price which produces only 25¢ a barrel for crude that is not economic waste. There is a transfer of some capital from seller to buyer but there is no destruction of a national resource. The consumer in fact is better off. Low price isn't waste. Oil can only represent a total loss when a substitute for fuel can be manufactured and used more economically and efficiently than the products from crude oil. The law of supply and demand has satisfactorily taken care of oil production in the past. Flush fields and low prices have brought prompt reduction in wildcatting and in drilling. High cost production from pumping fields has brought higher crude prices, increased drilling and inevitably successful wildcatting. There never has been since the dawn of history, any successful interference with the law of supply and demand.

If repeal of proration cannot be accomplished then logically the whole industry from drill stem to gas pump must be prorated. Federal control of drilling, of

production—refining and marketing would place the industry on a utility basis, operated with limited profits and entirely for the public welfare. The objections to such a step are all too obvious. But as the industry stands now with price pegging of crude oil and the rest of the industry locked in a free enterprise battle it is as absurd as having the speed of the caboose controlled by law and no speed limit placed on the locomotive.

The United States knows what it is to be host to a private monopoly. But it has never tried, except during the Great War and then in a limited sense, working out its destiny under a Federal monopoly. Germany and Italy are trying it. It sounds like a rather sorry remedy for economic ills.

The third suggestion is more consistent with our commercial development; i. e., the dissociation of oil production, transportation, refining and marketing and particularly the elimination of interstate transportation by oil producing and refining companies.

The courts prohibited some time ago the packing industry from controlling commerce on live hogs as well as in cured hams and butcher shops. They have limited railroads pretty definitely to only horizontal expansion.

Divorcement of pipe line companies from producing and refining companies has a mass of precedent favorable to such a solution of the monopolistic trend operative today in the industry.

Prices of East Texas Crude and Refined Products, 1935-1939

Date	E. Texas Crude	65+Oct. Gasoline	64-66 Gasoline	41-43 Kerosene	#2 Heating Oil	Bunker O. Fuel
1/1/'35	1.00	.055	.05	.05	.03625	.75
1/12	"	.0525	"	"	"	"
1/15	"	"	"	.05125	"	.80
1/21	"	"	"	"	.035	"
1/24	"	.04875	.04875	"	"	"
1/27	"	"	"	.65	.0325	.82
2/4	"	"	"	"	.035	.80
2/11	"	"	.0475	"	"	"
2/18	"	"	.04875	.0475	"	"
2/24	"	.05	"	"	"	"
3/5	"	"	"	"	.0325	"
3/11	"	"	"	.045	"	.78
3/12	"	"	"	"	.03125	"
3/17	"	"	"	"	"	.80
3/18	"	"	"	.04	.03	"
3/24	"	"	"	"	.03125	"
3/25	"	"	"	.03875	"	"
3/30	"	.0525	.05	.04	"	.85
4/21	"	"	"	"	"	.815
4/29	"	"	"	"	"	.80
5/6	"	"	"	"	.0325	"
5/14	"	"	"	"	"	"
5/19	"	.055	"	"	"	"
5/27	"	"	.0525	"	"	"
6/3	"	"	.05375	"	"	"
6/21	"	"	"	.03875	"	"
6/24	"	"	.0525	"	"	"
7/8	"	"	"	"	"	.78
7/21	"	"	"	"	"	.75
7/30	"	"	.05125	"	"	"
8/5	"	"	"	"	.03125	"
8/6	"	"	"	"	"	.70
8/12	"	"	"	"	.0325	"
8/26	"	"	"	.04	"	"
9/18	"	"	"	"	.03125	"
9/21	"	"	.04875	"	"	"
10/14	"	"	.05375	"	"	"
11/3	"	"	"	"	.0325	"
11/11	"	"	.055	"	"	"
12/9	"	"	.0575	"	"	"
12/11	"	.05625	"	"	"	"
12/11	1.00	.05625	.0575	.04	.0325	.70
1/1/'36	1.15	"	"	"	"	"
1/9	"	"	"	"	"	.75
1/14	"	"	"	"	.035	"
1/19	"	"	"	.03875	"	"
1/27	"	"	"	"	"	"
1/28	"	.06125	"	"	"	"
2/3	1.15	.06125	.0575	.0375	.035	.75
2/18	"	"	"	"	.03625	"
2/27	"	"	"	.03875	"	"
3/15	"	"	"	"	"	.79
3/21	"	"	"	"	"	.80
4/13	"	"	"	.0375	"	"
4/27	"	"	"	"	.035	"

Prices of East Texas Crude and Refined Products, 1935-1939—Continued

Date	E. Texas Crude	65+Oct. Gasoline	64-66 Gasoline	41-43 Kerosene	#2 Heating Oil	Bunker C. Fuel
5/24	1. 15	.06125	.0575	.0375	.0325	.80
5/26	"	"	"	"	"	.82
6/15	"	"	"	"	"	.85
6/27	"	"	"	"	.03125	"
6/28	"	"	"	.035	"	.80
7/13	"	"	"	"	"	.85
7/21	"	"	"	"	.0325	"
9/1	"	.06	"	"	"	"
9/15	"	"	"	"	"	.87
9/21	"	"	.05375	"	"	"
9/27	"	"	"	"	.03375	"
9/28	"	"	.055	.03625	"	"
10/5	"	"	"	"	"	.90
10/17	"	"	"	.04	"	.95
10/19	"	"	.05375	"	"	"
11/10	"	"	.05625	"	.035	"
12/8	"	.05875	"	.0425	.03625	"
12/21	"	"	"	.04375	"	"
12/27	"	"	"	.0475	.03875	"
12/30	"	"	.0575	.04875	.04	"
1/1/'37	1. 15	.05875	.0575	.04875	.04	.95
1/5	"	"	"	.0525	"	"
1/28	1. 27	"	"	"	"	"
2/3	"	"	.05875	"	"	"
2/5	"	.06	"	"	"	"
2/6	"	"	.06	"	"	"
2/8	"	.06125	"	"	"	"
2/18	"	"	"	.05125	"	"
3/9	"	"	.06125	.05	"	"
3/12	"	"	"	"	.03875	"
3/13	"	"	"	"	"	.90
3/27	"	"	"	.04875	"	"
4/6	"	"	"	"	.0375	"
4/9	"	.0625	"	"	.04	"
4/12	"	"	"	.0475	"	"
4/21	"	"	.0625	.045	"	"
5/3	"	.06375	"	"	"	"
5/6	"	.065	"	"	"	"
5/11	"	"	"	"	"	.925
5/18	"	"	"	.0475	.04125	"
5/22	1. 35	"	"	"	"	"
6/9	1. 35	.065	.0625	0.0475	.04125	.95
6/21	"	"	.04875	"	"	"
7/1	"	"	.06375	"	"	"
8/3	"	"	"	.05	"	"
8/26	"	"	"	"	"	.92
9/1	"	"	"	"	.0425	"
9/9	"	"	"	.05125	"	"
9/15	"	"	"	"	"	.875
9/16	"	"	"	"	.04375	"
9/21	"	"	"	.0525	.045	"
9/27	"	"	.0625	"	"	"
10/1	"	"	"	"	"	.85
10/3	"	"	.06125	"	"	"
10/4	"	.06375	"	"	"	"
10/15	"	.0625	.06	"	"	"
10/27	"	.06125	.03875	"	"	"
11/8	"	.06	.0575	"	"	"
11/11	"	.05875	.05625	"	"	"
11/27	"	"	.055	"	"	"
12/1	"	.0575	.05375	"	"	"
12/3	"	"	.0525	.05125	"	"
12/9	"	.05625	"	"	"	"
12/15	"	.0575	"	"	"	"
1/1/'38	1. 35	.0575	.0525	.05125	.045	.80
1/18	"	"	.05125	"	"	"
1/24	"	"	.05	"	"	"
1/25	"	"	"	"	.04125	"
1/27	"	"	.05125	.0475	"	"
2/2	"	"	.05	"	.04	"
2/9	"	.055	"	"	"	"
3/1	"	.0525	"	"	"	.75
3/3	"	"	"	"	.03875	"
3/10	"	"	"	.04625	"	"
3/15	"	"	.04875	.045	"	"
3/26	"	"	.05	"	.03625	"
4/3	"	"	.04875	"	"	"
4/12	"	"	"	"	.035	"
4/27	"	"	"	"	.0325	.725
5/3	"	"	"	.0425	"	"
5/9	"	"	"	.04	"	"
5/17	"	"	"	"	"	.70

Prices of East Texas Crude and Refined Products, 1935-1939—Continued

Date	E. Texas Crude	65+Oct. Gasolino	64-66 Gasoline	41-43 Kerosene	#2 Heating Oil	Bunker C. Fuel
5/24	1.35	.0525	.04875	.03875	.0325	.70
6/5	"	.05375	"	"	"	"
6/20	"	"	"	"	"	.675
6/25	"	"	"	"	.03375	"
7/1	"	"	"	"	.035	"
7/6	"	"	"	"	"	.65
7/15	1.35	.05375	.04875	.04	.035	.65
8/2	"	.0525	"	"	"	.625
8/6	"	.05125	"	"	"	"
8/22	"	.05	.04625	"	"	.60
8/29	1.25	"	"	"	"	"
9/7	"	.04875	"	"	"	"
10/3	"	"	"	.03875	"	"
10/11	1.10	.0475	.0475	"	"	"
11/7	"	.04625	.04375	"	.03375	.62
11/14	"	"	"	"	"	.65
11/15	"	"	"	"	"	.62
11/21	"	"	"	"	"	.65
12/2	"	"	"	"	"	.67
12/19	"	"	.0425	"	"	.675
12/21	"	.045	.04375	"	"	"
1/1/39	1.10	.045	.04375	.03875	.03375	.675
2/12	"	"	"	.0375	"	"
2/18	"	"	.0425	"	"	"
2/24	"	"	"	"	.0325	.65
3/3	"	"	"	"	"	.675
3/13	"	"	"	"	.03125	"
3/24	"	"	"	.03625	"	.70
4/1	"	"	"	"	"	.73
4/4	"	"	"	"	.03	"
4/7	"	.0475	.04375	"	"	"
4/12	"	"	"	.035	"	"
4/17	"	"	"	"	"	.75
4/27	"	"	.04	"	"	"
5/1	"	"	.04375	"	"	"
6/3	"	"	"	"	"	.77
6/6	"	.04875	.045	"	.03125	"
6/12	"	"	"	"	"	.79
6/16	"	"	"	"	.03	"
6/21	"	"	"	"	"	.80
6/27	"	.0475	"	"	"	.79
6/28	"	"	"	"	"	.80
7/5	"	"	"	"	"	.78
7/12	"	"	"	"	.03125	"
8/4	"	"	"	"	.0325	"
8/21	"	.05	.0475	.0375	.03375	.80
9/22	"	.0475	"	"	"	.78

EXHIBIT No. 1182

[Submitted by Mr. Crowley]

STATEMENT PREPARED FOR THE TEMPORARY NATIONAL ECONOMIC COMMITTEE.
BY KARL A. CROWLEY, Esq., FORT WORTH, TEXAS

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	Control of Oil Business by Private Monopoly, Government Monopoly, or Private Competitive Ownership

To the Temporary National Economic Committee:

It is recognized that the time of this Committee will not permit a consideration of the question of monopoly in the oil business in the utmost detail. For this reason this statement will cover only production, transportation, and refining of oil, and is in the nature of a summary showing facts that have been obtained from public records, news dispatches, governmental agencies, and statements of public officials and persons engaged in the oil business. It is assumed that the Committee will hear other evidence relating to the pooling of patents, affiliations of companies with each other, the relation of integrated oil companies with railroads, banks, insurance companies, and other industries; also in relation to other matters not mentioned herein.

This statement will be confined principally to facts rather than arguments, conclusions, and opinions. However, it is assumed that the Committee may desire to have included herein suggestions as to what may be done to restore competition in the oil business, and these suggestions and recommendations are made.

Most of the information relating to field operations contained herein refers to Texas for the reason that in this State the source of materials and information is more accessible.

PREVIOUS INVESTIGATIONS

The Temporary National Economic Committee, in the investigation of the oil monopoly, is traveling over a well beaten path made by its predecessors, the courts, committees of Congress, the Corporation Commissioner, the Federal Trade Commission, and the Interstate Commerce Commission, and other governmental agencies. These agencies of the government have rendered numerous reports and decisions which support the charge that a monopoly exists in the production, transportation, refining, and marketing of oil.¹ This monopoly was once in the hands of the Standard Oil Trust; today the monopoly is in the hands of the major companies who operate systems of production, transportation, refining and marketing. All of these companies are either connected together with common stock ownership and interlocking directorates and affiliations, or they have adopted common policies which tend to prevent competition from the independent in the production, refining, transportation, or marketing of oil.

The relationship of these companies with each other and the effect upon the consumer because of monopoly in the sale and distribution of gasoline and oil at retail, will not be discussed at any great length here. This will deal with production, pipeline transportation, marketing, and to some extent refining in the Southwestern States, particularly in Texas.

Information will be presented here for the purpose of showing:

- (1) That there is a monopoly in the oil business, and that such monopoly is exercised by the major integrated companies;
- (2) That the monopoly enables the integrated companies to control the price of crude oil and its products, the production, transporting, refining, and marketing thereof, to the detriment of the public;
- (3) That the oil monopoly is crushing the independent out of existence and has destroyed and is destroying local industry and local capital through unfair competition and monopolistic trade practices;
- (4) Suggested remedies.

¹ Report of Commissioner of Corporations, 1906; Interstate Commerce Comm. January 28, 1907; Standard Oil Cases—Std Oil v. U. S., 221 U. S. 1, 55 L. Ed. 619.

DISCOVERY OF OIL BY INDEPENDENTS

The independent wild-catter must be given credit for practically every major discovery of oil in the United States. It was due to the faith of independents that the great Ranger field was discovered when the world was faced with a shortage of oil during the World War. Independents opened the gigantic Burburnett pool, Cushing, Seminole, Spindletop, and countless others. The hardy independent has discovered and used new methods for locating oil pools, and time after time he has gone into territory condemned by the majors and unearthed a new store of nature's riches.

There is ample proof to support the statement that independents have been the principal discoverers of new oil pools. Two statements taken at random show a comparison of operations in 1934 in the oil producing states of Arkansas, Louisiana, Mississippi, Texas, Oklahoma, Kansas, New Mexico, Colorado, Wyoming, Montana, and Utah. This shows a total of 1,254 wildcat wells drilled during 1934; of these the majors drilled only 163 and independents drilled 1,171.²

In the State of Kansas, there were reported as of November 19, 1936, 280 pools or fields. Two hundred twenty-six of these were discovered by individuals, and only 54 by the major integrated companies.³ Of the 46 greater pools discovered in Oklahoma, New Mexico and West Texas, 30 have been discovered by individuals and independents, 14 by majors, and 4 jointly.⁴

Comparison of operations, 1934, major companies and independent operators

[By E. F. Sheay, Tulsa Geological Society Digest, 1935]

State	Total	Wildcats Drilled by Majors	Wildcats Drilled by Independents
Arkansas.....	33	0	33
Louisiana.....	120	17	103
Mississippi.....	16	6	10
Texas.....	716		
Gulf Coast.....	122	23	99
East Texas.....	157	10	147
Southwest Texas.....	370	28	342
West Texas.....	67	9	58
Oklahoma.....	150	41	109
Kansas.....	112	20	92
New Mexico.....	15	3	12
Colorado.....	26	3	23
Wyoming.....	33	3	30
Montana.....	8	0	8
Utah.....	5	0	5
	1, 234	163	1, 071

KANSAS

County	Number of pools or fields	Discoverer (Company or Individual)		County	Number of pools or fields	Discoverer (Company or Individual)	
		Inde- pendents	Majors			Inde- pendents	Majors
Barber.....	3	3	0	Reno.....	14	9	5
Barton.....	17	15	2	Rice.....	40	30	10
Clark.....	2	2	0	Rooks.....	9	9	0
Edwards.....	2	2	0	Rush.....	7	6	1
Ellis.....	20	20	0	Russell.....	61	49	12
Ellsworth.....	13	12	1	Saline.....	1	1	0
Finney.....	3	3	0	Scott.....	1	0	1
Grant.....	2	2	0	Sedgwick.....	8	6	2
Harvey.....	13	10	3	Seward.....	2	2	0
Haskell.....	4	4	0	Stafford.....	8	6	2
Kingman.....	4	4	0	Stevens.....	1	1	0
McPherson.....	30	20	10	Sumner.....	6	4	2
Morton.....	1	1	0	Trego.....	3	2	1
Ness.....	2	0	2				
Pawnee.....	1	1	0	Totals.....	280	226	54
Pratt.....	2	2	0				

Reference: The Oil and Gas Journal, November 19, 1936, Pages 26-27-28.

¹ Report of E. F. Sheay, Tulsa Geological Society, 1935.² Oil & Gas Journal, November 19, 1936 pp. 26-29.⁴ Schedules attached.

OKLAHOMA

County	Pool	Discoverer	Discovery Date	Accumulated Prod. thru—	Depth
<i>1931</i>					
Stephens.....	Duncan.....	Empire Gas & Fuel (M).....	May 1920....	36,429,214	1,695
Seminole.....	Wewoka.....	R. H. Smith, et al (I).....	Aug. 1923....	30,948,891	3,120
Osage & Kay.....	Burbank.....	Marland Oil & Roxana (I & M).....	May 1920....	194,454,350	2,949-67
Creek.....	Cushing.....	Chas. B. Shaffer (I).....	Mar. 1912....	315,561,171	2,194-2,208
Garfield.....	Garber.....	Sinclair O & G Co. (M).....	Nov. 1916....	44,070,087	1,100
Seminole.....	Cromwell.....	Cosden O & G Co. (I).....	July 1923....	42,910,621	3,380-84
Carter.....	Hewitt.....	Texas Company (M).....	June 1919....	72,286,503	2,100
Carter.....	Healdton.....	Red River Oil Co. (I).....	Aug. 1913....	165,809,339	920
Lincoln.....	Davenport.....	Flynn-Morgan (I).....	Sept. 1924....	10,409,151	3,424
Kay & Noble.....	Tonkawa.....	Wentz-McCaskey (I).....	Sept. 1922....	110,916,767	2,022
Kay.....	Braman.....	Comar Oil Co. (I).....	Sept. 1924....	14,455,622	2,088
Potawatomie.....	St. Louis-Peason.....	Pierce Petro & Wrightman (I-M).....	May 1927....	76,320,558	3,793
Oklahoma.....	Okla. City.....	I. T. I. O. (I).....	Dec. 1928....	79,148,611	6,406
Logan.....	Roxana.....	Shell Petro. (M).....	Sept. 1927....	10,893,164	5,985
Potawatomie.....	Ashe.....	Simms Petro. (I).....	May 1929....	2,654,654	3,699
Seminole.....	Sasakwa.....	Sinclair Oil Co. (M).....	Apr. 1929....	5,634,741	4,164
Seminole.....	Konawa.....	Harris, et al (I).....	Nov. 1929....	7,902,132	4,052
Creek.....	Bristow-Slick.....	Continental & Kawfield (I-M).....	Sept. 1919....	132,047,051	2,905-2,665
Carter.....	Graham-Fox.....	Kirk O & G & Gypsy (I-M).....	May 1921....	32,816,310	2,223-2,028
Osage.....	Barnsdall.....	Barnsdall Oil Co. (I).....	Mar. 1916....	.....	2,300
Seminole.....	Bowlegue.....	I. T. I. O. (I).....	Jan. 1927....	.....	4,070
Stephens.....	Empire.....	Empire O & G Co. (M).....	Apr. 1920....	.....	1,700
Garfield.....	Garber.....	Sinclair O & G (M).....	Sept. 1917....	.....	1,156
Stephens.....	Knox.....	Walter Gant, et al (I).....	1916.....	.....	1,213
O k f u s k e e - Hughes.....	Papoose.....	Papoose Oil Co. (I).....	1923.....	.....	3,350
Creek.....	Red Bank.....	Red Bank Oil Co. (I).....	Nov. 1918....	.....	2,816
Garvin.....	Robberson.....	Magnolia Oil Co. (M).....	June 1920....	.....	1,386
Carter-Stephens.....	Shoalem.....	Humble Oil & Ref. (M).....	Dec. 1923....	.....	1,890-4,200
Osage.....	Alachem.....	.....	.....	.....	.....
.....	Wildhorse.....	M. B. & K. Oil Co. (I).....	Aug. 1912....	.....	2,270

References: Oklahoma Geological Survey; Chas. N. Gould; Bulletin No. 40 Vol. 1; Review of 1931 in Oil and Rhineharts Oil Report.

NEW MEXICO

<i>1936</i>					
Eddy.....	Artesia.....	Flynn, Welch & Yates (I).....	Aug. 1923....	4,753,150	1,930
Lea.....	Eunice.....	Continental Oil Co. (M).....	Mar. 1929....	12,925,154	3,800-3,950
Lea.....	Hobbs.....	Mid-West Refining Co. (I).....	Nov. 1928....	74,264,521	4,065-4,220
Lea.....	Jal.....	Skelly Oil Co. (I).....	Jan. 1929....	5,201,131	3,339
Lea.....	Lea.....	Texas Co. (M).....	June 1929....	5,662,730	3,731
Lea & Eddy.....	Maljamar.....	Maljamar Oil Co. (I).....	July 1926....	3,585,000	4,100-4,150
Lea.....	Monument.....	Amerada Petroleum (I).....	Mar. 1935....	3,848,914	3,900-3,950

WEST TEXAS

Reagan.....	Big Lake.....	Texon Oil & Land (I).....	July 1923....	85,338,256	3,028
Crane & Upton.....	Church-Fields-McIlroy.....	Church & Fields (I).....	Apr. 1926....	100,461,366	2,700-3,160
Ector.....	Goldsmith.....	Landreth Production (I).....	Dec. 1934....	461,772,000	4,100-4,200
Winkler.....	Hendrick.....	Westbrook, et al (I).....	Nov. 1925....	189,523,629	2,740-3,100
Glasscock & Howard.....	Howard-Glasscock.....	Fred Hyer (I).....	Nov. 1925....	72,790,963	1,566
Upton.....	McCamey.....	George McCamey (I).....	Aug. 1926....	30,837,183	2,000-2,300
Ward.....	North Ward.....	Sid Richardson (I).....	Apr. 1929....	25,992,528	2,600-3,000
Mitchell.....	Westbrook.....	Underwriters Prod. (I).....	Mar. 1921....	8,132,757	2,900-3,000
Loving.....	Wheat.....	Pecos Valley Petroleum (I).....	Mar. 1924....	6,533,320	4,200-4,300
Pecos.....	Yates.....	Mid-Kansas & Transcontinental (I).....	Oct. 1926....	219,648,605	1,150

References: Rhinehart's "West Texas—New Mexico Oil," September 15, 1937.

Witness the Great Permian Basin, where a new pool was opened in Winkler County. There the majors had condemned that entire area as being worthless for oil—said that it was impossible to produce oil from the formations that were to be found there. It was condemned as being so utterly worthless that the fool-hardy wildcatter there was unable to sell any of his leases to the major companies and had to depend upon individual speculators to obtain a few dollars from time to time until he literally worried his well down to production. He and

his associates found themselves the possessors of a great well located in a block of nearly 30,000 acres of land that has proved to be immensely rich and productive.

At intervals between 1920 and 1930, major companies carried on a systematic wildcatting program for oil in the five counties in which lies the great East Texas oil field. Wells were drilled in Rusk, Gregg, Smith, Upshur, and Cherokee Counties, and when they were unsuccessful, the majors condemned all that section of Texas as being utterly worthless and declared it was impossible to find oil in the formations of that section.

It remained for a true independent, C. M. "Dad" Joiner, to discover the world's largest oil pool and to add billions of new wealth to the State of Texas and an unheard-of supply of cheap oil for the people of the nation. Joiner spent more than a year drilling his well. He often was compelled to shut down operations for lack of money and was only able to finish his well by borrowing money from his friends and selling a few leases to individuals. Not a dollar did he ever get from any major company. Joiner's well came in October 3, 1930; it produced 300 barrels of oil a day and it encouraged others to drill in the area and three months later on December 28, 1930, another independent drilled 15 miles farther north and completed a well with an initial production of 10,000 barrels daily. Approximately one month later, about January 26, 1931, another independent brought in still another well, 15 miles farther and this one came in for 12,000 barrels of oil daily.

With the discovery of the latter two great wells by independents, the majors found themselves with very few leases in the field. They sent their buyers, land men and lawyers to the field by the hundreds, all armed with plenty of money and entered into an unprecedented buying campaign to acquire the choicest leases, covering land that they had before condemned as being utterly worthless. The independents, however, had secured a toe-hold and even at this time owned half of the leases in that great field.

And so it was that the East Texas field, the greatest oil field in all history, came into existence through the adventuresome spirit, faith, confidence and capability of independent wildcatters.

DEVELOPMENT AND PRODUCTION OF OIL IN EAST TEXAS

By the end of 1931, the first full year of development in the East Texas field, there were 3612 wells in an estimated producing area of 92,000 acres. The average was one well to every 25 acres.

By the end of 1933, there were 9372 wells within the territory, an estimated 105,000 producing acres, and an average of 11 acres to each well.⁵

It is most interesting to note the effect of proration (restriction of production of crude oil) as practiced in the East Texas field. This field was the focal point of attack upon the independent producer and refiner. The major integrated companies had condemned the whole East Texas country as non-productive of oil. Hundreds of intelligent independents realized the possibilities of East Texas and quickly went into the field and secured leases for themselves before the majors realized that their judgment was not infallible. The presence of independents who had secured a foothold in East Texas constituted a very real threat to the monopoly. It was the first time since the Ranger field had been discovered by independents during the World War days that the independents had had a real opportunity to compete with the majors. Independent citizens of Texas actually had the temerity to invest their money in refineries in the heart of this great oil field and approximately 100 were built and for a long time afforded a market to the independent producer who was and is glad to do business with an independent refiner.

The majors saw that something must be done to keep the independent from growing and threatening the monopoly they were enjoying. The result was proration with such a low allowable production as to make it almost impossible for an independent to drill and operate wells in East Texas, and later the extermination of the independent refiners by "rigging" the price of crude oil.

EXTENT AND AREA OF THE EAST TEXAS OIL FIELD

East Texas oil is produced from what is known as the Woodbine sand, at an average depth of 3,300 feet. The oil is of about 40 degrees Baume gravity; the gasoline content is 36 per cent with an octane value of 57, which make it one of the finest types of crude oil in the world for the production of cheap gasoline.⁶

⁵ Report of RR Comm. of Texas.

⁶ RR Comm of Texas.

This great field covers portions of five East Texas Counties and covers 133,750 producing acres or 209 square miles.⁷

There have been drilled to February 3, 1939, a total of 26,077 wells in the field. On January 29, 1939, major companies were owners of 14,295 wells on 83,440 acres, while all others owned 11,676 wells on 49,960 acres. These wells have been tested by the Railroad Commission, and on January 1, 1939, they were found to have an hourly potential flow of 15,629,108 barrels.⁸ This potential flow is by no means the flow that is allowed by the Commission; it merely indicates the amount of oil that the wells are capable of flowing per hour on January 1, 1939.

Estimates have been made of the amount of the oil reserve in the East Texas field, and is placed by the Railroad Commission of Texas at $2\frac{1}{4}$ billions of barrels,⁹ or approximately $\frac{1}{4}$ th of the estimated potential reserves of $18\frac{1}{2}$ billions of barrels of the entire United States.¹⁰

Of the total known oil reserves in the United States of 18,561,332,000 barrels, Texas has more than one-half, or 9,923,378,000.¹¹

THE BEGINNING OF PRORATION IN EAST TEXAS

For the purpose of the consideration of monopoly in the oil business, it is not particularly necessary to go into the history of laws limiting the production of oil, commonly called "proration" laws. It is generally well known that with the discovery of the East Texas oil field and its rapid development by independents instead of majors, there was immediately a great and unexpected supply of oil made available. Such a supply of oil owned by independents threatened to move into competition with oil produced from other fields owned by the majors.

In order to restrict production the major companies first prevailed upon the then Governor of Texas to proclaim martial law in the East Texas oil field. Officers of major companies were likewise officers of the National Guard in control over the oil field. Federal courts held that the Governor was without authority to do this. The major companies began building pipe lines from the field to tide-water, and independent refineries began building in the field. Oil was selling then in the field at 50 cents a barrel, but on April 24, 1933, the majors dropped the posted price to ten cents a barrel as the first move to enlist the aid of independents themselves in securing the drastic proration laws Texas now has.

The majors said in effect, "Cut production in East Texas to what we think it ought to be and we will pay you \$1.00 a barrel for oil. If you do not, we will ruin you with low prices."¹¹

Using the club of ruinous prices, the integrated companies went before the Texas Legislature and demanded that they be given the right to prorate oil according to their demands. As a club to enlist the support of the Railroad Commission, which has jurisdiction to regulate oil production, they even had introduced a bill which passed the House to create a new Commission to administer oil. The Austin Dispatch in an editorial said:

"There is only one reason for such a measure; to oust the regulators who fail to do the major oil companies' bidding and to put in others who will. East Texas is one of the few oil fields where the landowner, wildcatter and true independent got a handhold and the octopus means to break that hold by whatever means are found necessary."¹²

The means were found. The means was the ruinous prices paid for oil by the majors in the East Texas field. They determined to speak their piece with prices and sandbag the Legislature into passing their so-called conservation bills. Their method and reasons are simply set forth in a statement by a major-company spokesman:

"The situation in the oil industry is certainly no better today than it was at the close of 1932; in some ways it is worse. By raising the allowable of 750,000 barrels daily for the East Texas field, the authorities in Texas have claimed for that field the right to produce approximately one-third of the United States requirements.

"The oil industry's answer was to cut the price in East Texas. Crude prices in competing fields in other States cannot hold up long with products made from ten-cent crude coming out of Texas.

"The marketing branch of the business is rotten with bad practices and it begins to look as if more drastic and sweeping changes will have to be made to do anything toward cleaning up.

⁷ United Oil Field Report, January 1, 1939.

⁸ R.R. Comm of Texas Report, January 1, 1939.

⁹ Texas proration hearing, R. R. Comm of Texas.

¹⁰ A. P. I. Report, February 26, 1939.

¹¹ Texas Newspaper, April 23, 1933.

¹² Austin Dispatch, April 25, 1933.

"Any kind of forecast is just wild guessing. *We are probably at the point where the industry will have to speak its piece with prices until the State authorities, particularly in Texas, devise some more efficient means of control than they have brought forward to date.*

"The oil industry cannot live without fair profits, and it can not earn profits so long as a few non-conformists are able to wreck any kind of price schedule that is set up."¹³

When the major integrated companies joined together and arbitrarily fixed a cut-throat price for East Texas crude, they said their piece most effectively. The present proration laws then came into being and they have been more drastically administered against the independent from day to day, month to month, and year by year, until now the independents who developed the East Texas field can not operate there profitably.

The rapid price changes posted in the East Texas field almost tell a story of their own. The first posted price was 68 cents per barrel which was from August to November 1st, 1931. When the fight came on for the enactment of the proration laws in December, 1932, the price was from 75 cents to 98 cents a barrel. While the major integrated companies had the State Capitol at Austin full of lobbyists, they began to put on the pressure through the price squeeze. On January 18th, the 75-98 cent price was cut to 25, then to the ridiculous price of ten cents, and it was not until September 29, 1933 that the price ever again reached \$1.00 a barrel. During this time the major companies not only got enacted the proration law, but they bought tens of millions of barrels of oil at prices ranging from ten cents to 50 cents a barrel.

See schedule following.

The proration laws of Texas authorize the Railroad Commission of the State to fix the amount of oil that is allowed to be taken from each field. The amount from each field is then prorated among all the wells there. There is no definite rule laid down either by statute or by rules of the Texas Railroad Commission determining the amount of oil that may be produced from any certain field. There is no established rule by which a producer can know from month to month just what amount of oil he will be allowed to produce from his wells; there is no established rule as to the amount of oil taken from any one field; different fields have different allowables; these allowables are fixed, in Texas, by the Texas Railroad Commission after hearings. They vary from time to time; special allowables have been granted, as will hereinafter be pointed out, which give the operator fortunate enough to secure such special orders the privilege of withdrawing more oil from his own wells than is allowed to be taken from his neighbors' wells. Instances are known where wells in the same field are producing far in excess of the amounts produced from other wells in the same field. All this has given rise to charges of favoritism being practiced by the Commission to reward its friends.

The Texas proration laws were followed by similar statutes in Louisiana, Arkansas, Oklahoma, Kansas, and New Mexico, but in no other state, except Kansas, has there been shown any great effort to hold down the production to the so-called "market demand."

The term "Market demand" has been used to indicate the amount of oil that would be consumed by the buying public and that demand has presumably been ascertained by the indications filed by the major integrated oil companies with the Railroad Commission in Texas as to the amount of oil they collectively desire to purchase.

WELLS DRILLED IN EAST TEXAS

It is unquestioned that there have been thousands of wells drilled in East Texas that have caused economic waste of capital. East Texas wells cost about \$10,000 to drill and equip, and \$200,000,000 has been spent in drilling needless wells. There had been drilled 25,929 wells in the field up to December 1, 1938. The average number of acres per well is 5.16; the density of the wells drilled ran from 16 on a plot of ground 200 by 200 feet (a town block) to several acres.¹⁴

The Railroad Commission order specified the drilling of one well to each 10 acres, but exceptions to the rule were granted for nearly 20,000 wells to both majors and independents alike, for one excuse or another, until they have admittedly drilled nearly four times as many wells as were necessary to efficiently and economically produce oil from this field. It has been repeatedly charged that the system of proration and granting exceptions to the drilling of wells has been abused by politicians and influential interests. But whether it has or not, the

¹³ Statement of E. G. Seubert, Petroleum News, May 10, 1933, p. 16.

¹⁴ United Oil Field Report Jan. 31, 1939; Texas Railroad Commission.

fact remains that proration, as administered, has always worked to the disadvantage of the independent operator, and so we contend that he is an easy victim of the major.

Up to the year 1932 there had been drilled 9,372 wells in East Texas. That year the field produced 120,440,000 barrels. In 1938, 25,765 wells produced 149,600,000 barrels.

Attention is called to the fact that approximately 300 per cent increase in the number of wells produced only a 20 per cent increase in the number of barrels of oil.

A table is inserted here showing the development of East Texas, the number of wells per year, estimated producing acres, as follows:

Date	No. Wells	Estimated Producing Acres	Average Well Density (Ac. per well)
Jan. 1, 1931	30		
Jan. 1, 1932	3,612	92,000	25.47
Jan. 1, 1933	9,372	105,000	11.20
Jan. 1, 1934	11,891	116,000	9.76
Jan. 1, 1935	15,507	124,000	8
Jan. 1, 1936	19,552	132,700	6.79
Jan. 1, 1937	22,332	133,800	6.17
Jan. 1, 1938	24,269	134,000	5.52
Jan. 1, 1939	25,765	135,000	5.24

There is also shown the annual production of the East Texas field since its discovery:¹⁵

Year	No. Barrels	Year	No. Barrels
1930	27, 220	1935	176, 338, 000
1931	105, 726, 036	1936	160, 356, 000
1932	120, 440, 483	1937	169, 016, 215
1933	171, 802, 000	1938	149, 599, 892
1934	158, 370, 100		

At the beginning of proration, the allowable fixed for the field was 200 barrels per well daily. It has been cut and cut until the amount is now 14 barrels daily per well, average, for which the producer receives \$1.10 per barrel.

It is obvious that the little man in the oil business can not continue to operate and drill wells under this allowable in East Texas. It will take from 2 to 3 years to pay the cost of drilling a well and operating expenses. It will require long-term financing which he can not make except by paying premiums and a high rate of interest, whereas the major does its financing in terms of millions, with the sale of bond issues.

With this however, the price in East Texas is a fairer price for oil than is maintained elsewhere in the State where the independent refiner is not trying to operate to any great extent. For the purposes of monopoly this plan is perfect; a higher rate is paid for oil in East Texas than elsewhere, the production per well based on potential is kept lower in East Texas than anywhere else and the result is that while the independent producer is squeezed, the independent refiner is also squeezed; the public is not benefitted, and the major integrated companies are the only ones to reap the reward of proration as practiced in East Texas.

Another result is that the independent producer is moving out of East Texas, in fact out of Texas, into the states of Arkansas, Louisiana, Illinois, Indiana, and Kentucky, and the East Texas oil field is overrun today with unemployed oil field and refinery workers.

Another result is that oil wells in East Texas are a drug on the market. Wells worth \$50,000 to \$60,000 two years ago, are being offered for sale for less than half that sum today and the majors are buying the choicest properties in the field at practically their own figures.

So, except in rare cases, proration, price fixing, squeezing, difficult financing, etc. is driving the independent producer out of East Texas.

Practically every major integrated company is a foreign corporation, domiciled in the North and East, or is a subsidiary thereof; practically every independent is a citizen of Texas.

¹⁵ Railroad Commission of Texas.

SPECIAL ALLOWABLES AND DISCRIMINATIONS IN PRORATION

Under so-called "conservation laws" the production of crude oil is limited in some states, particularly Texas, by proration of special fields and wells to what is known as "market demand."

Under any sound system of conservation, the matter of market demand would have no place; they are as far apart as the poles.

Under any sound system of proration, fair, equal, and just treatment ought to be given to all producers alike.

Under the "market demand" system of conservation, wells and fields are "prorated on the basis of recommendations by the major purchasers." By this is meant that the major companies indicate their requirements in Texas to the Railroad Commission; that they desire to purchase such and such an amount for such and such a field. In fields where the Majors control, their "recommendations" are naturally larger than in the fields owned by their weak competitor, the independent.

The allowables in Texas vary from the full capacity of the smallest, or stripper wells, to the allowable for full production of which other fields are capable. There is no equality or uniformity whatsoever in the administration of the proration laws in any state in the Union. There are different amounts allowed for different fields and there are different amounts allowed for different operators within the same field.

How easily the effect of conservation by proration is circumvented is shown by the fact that in the months from November, 1937 to December, 1938, the Railroad Commission of Texas issued orders for "special allowables" totalling a daily increase of 91,258 barrels from certain fields in Texas.¹⁶

These special allowables are fully shown by the report made to the Senate Investigation Committee of Texas.¹⁷ These "special allowables" were granted for a variety of reasons and numbered several hundred in all. It is worthy of note to observe that in not one single instance has a special allowable been granted to any operator in the East Texas field.

One of the reasons given for the granting of a special allowable to an operator was to allow export orders to be filled. Of course, Texas exports nearly all of her oil, but it is surprising how often an applicant was able to come in and secure an order for thousands of barrels, alleging that he had a buyer in a foreign country. It was never taken into consideration that this special allowable for oil going into export markets simply was used to fill a demand already existing for export oil.

The second excuse offered was that the "operator is unable to reduce production to the allowable without endangering the life of the well, and being in danger of killing the well if cut to the allowable."

Another excuse offered in the granting of a special allowable was "to place that field on a parity with other fields."

It is a notorious fact that favoritism in the granting of special allowables has been shown in case after case, but as stated, at no time has there been granted a special allowable to any operator in the East Texas field. The East Texas field has borne the burden of lost markets, rigid proration below an amount of reasonable return, and suffered from price rigging which has made its oil unavailable to independent refiners.

The February, 1939 proration hearing before the Texas Railroad Commission showed that there were still being made discriminations in favor of preferred operators over others. One operator in the Yates pool of East Texas had a daily allowable of 718 barrels total.¹⁸ The average allowable of the area was about 47 barrels.

The operators of the Old Ocean pool have a special allowable of 299 barrels a day for some wells, and during December overproduced 18,000 barrels from 25 wells. This was an overproduction of about 24 barrels per well per day and this, together with the allowable of 299 barrels per well, totalling 323 barrels daily and was complained of by one East Texas operator who said:¹⁹

"We have gone along with the Commission and have taken our allowables in order to avoid price reductions. The East Texas field is now producing but an average of 13 barrels per well and many of these wells are capable of yielding 15,000 to 20,000 barrels a day. If all the wells in the State were held to the same schedule we would still go along.

¹⁶ Tex. R. R. Comm. Rep.

¹⁷ Senate Investigating Committee, Senator Joe Hill, Chmn., 1938.

¹⁸ Hearing, R. R. Comm. Feb. 1939.

¹⁹ Hearing before Texas R. R. Comm. February, 1939.

"It developed that certain marginal fields have an allowable that they do not need and can not make. One field is the Markham field, which would yield on the marginal basis only 25 barrels a day, instead of the 172 barrels allowable. The statement of the auditor of the Commission shows that during December the Gulf Coast did not produce within 200,000 barrels of its authorized production."

These instances are pointed out to show that East Texas, where independents have some rights left, is throttled so low that the operators can not make any profit while the Gulf Coast pools and other sections have special allowables, are granted other favors even as between themselves, and the entire Gulf Coastal area, dominated by the majors has such a high allowable that it can not even produce the amount authorized by the Commission. In these cases proration operates for the benefit of the major integrated companies in that they have secured the right to produce as much oil as they desire from their own fields, while over-production is given as the reason for the squeeze placed on East Texas.

HOT OIL

Proration has been effectively imposed upon the producers of only two states, Texas and Kansas. The Compact was signed by these two states, also New Mexico, Louisiana, Arkansas, and Oklahoma. Each state properly reserved to itself the right to fix the amount of oil allowed to be produced by their respective fields. Texas, while capable of producing the nation's supply consistently restricted her production under the orders of the RR Commission and in compliance with the demand of the Majors in order to meet the "market demand."²⁰

It is freely charged and never denied that as fast as the producers of Texas were restricted in their production and the supply reduced, other states would immediately increase their production and immediately supply oil for the market in excess of demand, giving a good excuse for further reductions in the amount of allowable for Texas.

The integrated majors own a vast amount of proved acreage in Louisiana. These same companies, who have howled the loudest about excess production of oil in Texas, have quietly produced every barrel that they desired from their own leases in Louisiana with little or no restriction whatsoever.

There have been published reports of overproduction by the major companies in Southern Louisiana for a two-week's period which ended March 10th, 1938.²¹

Each of the Southern Louisiana fields was practically owned by one major company. The amount of oil authorized and allowed to be run from the Louisiana Commission ran from 800 barrels per well per day down to as low as 90 barrels.

One well in Louisiana was commonly allowed to produce as much as 50 wells in East Texas. The records show that the question of allowable did not concern these major companies but that during these two-weeks period a total overage of 118,864 barrels was produced in the Southern Louisiana fields. This overage is what is called "hot oil" in Texas; that is, oil produced in excess of the allowable. A printed copy of the statement showing this condition, the name of the company and its interest in each field follows:

Over-Production of Allowables in Southern Louisiana for a Two Weeks Period Ending March 10, 1938

Field and Ownership	No. Wells	Daily Average Production	Daily Average Allowable	Daily Average Overage ¹	Total Overage ¹
Bateman Lake.....	1	362	350	12	168
100% Texas Company.					
Caillou Island.....	36	18,325	15,500	2,825	39,550
100 % Texas Co.					
Cameron Meadows.....	29	4,105	3,750	355	4,970
60% Burton.					
35% Humble-Magnolia.					
5% Texas.					
Charenton.....	8	1,879	1,850	29	406
100% Pan American.					
Gillis.....	60	9,560	9,500	60	840
30% Union-Sulphur.					
65% Texas Fohs.					
5% others.					

¹ The word "overage" is used in Louisiana for what is commonly referred to as Hot Oil in Texas.

²⁰ RR Comm. Hearings, 1938.

²¹ Louisiana Conservation Comm. Reports; Texas Newspapers, March 1938.

*Over-Production of Allowables in Southern Louisiana for a Two Weeks Period
Ending March 10, 1938—Continued*

Field and Ownership	No. Wells	Daily Average Production	Daily Average Allowable	Daily Average Overage	Total Overage
Gueydan 100% Pure Oil Co.	5	438	400	38	532
Iowa 85% Shell. 12% Magnolia. 3% others.	53	15,362	15,000	362	5,068
LaFitte 100% Texas.	21	15,179	12,000	3,179	44,506
Lake Pello 100% Texas Co.	5	1,344	1,250	94	1,316
Old Hackberry 100% Sun Oil Co.	44	3,101	3,000	101	1,414
Quarantine Bay 100% Gulf.	1	810	750	60	840
Roanoke 50% Humble. 45% Shell. 5% others.	23	4,845	4,500	345	4,830
Ville Platte 100% Continental.	2	909	800	109	1,526
Vinton 38% Gulf. 50% Vinton Petroleum. 12% others.	74	1,507	1,300	207	2,898
Totals	362	77,726	69,950	7,776	118,864

From Louisiana Conservation Comm. Reports.

It is commonly believed, and the proponents of the inequitable proration laws of Texas constantly charge, that hot oil running is confined solely to the little independent. The Louisiana table shows on its face that this is not true, but that the majors themselves have been guilty time after time of the producing of more oil than the allowable in Louisiana. The Connally Hot Oil Act is in effect only in Texas and only in one oil field in Texas, the East Texas field. It is known that the Act is strictly enforced as to the independents whose wells and pipelines connections are constantly subjected to inspection and checking by those in charge of the enforcement of the Connally Act. If any check has ever been made upon the wells and pipelines of the major companies by the Tender Board or those in charge of the enforcement of the Act, then there is no public record of such investigation.

The Connally Hot Oil Act prohibits the transportation in interstate commerce of oil produced in excess of the amount allowed by the state regulatory officers. "Overage" as shown in the Louisiana Report simply means "Hot oil" in Texas, and the word "excess" oil is another term for "hot oil." All the hot oil produced in Texas has not been produced by independents.

The United Oil Field Report shows that "excess production" in the East Texas field up to January 1, 1939, amounted to the staggering total of nearly 83 millions of barrels. The exact figures were 82,788,480 barrels of so-called "excess" or "Hot" oil; this could not have been produced by independents and put into pipelines, because the pipelines are all owned by the majors.

The reports of the Attorney General show that less than 5 per cent of this oil was ever sold under conservation orders.²² What became of the other 78 million barrels of excess or hot oil?

No government agency has ever answered this question, and no public reports have been made concerning running of hot oil by the majors.

From reference to the Louisiana table²³ it will be seen that these major integrated companies having pipe lines running into Texas from Louisiana have actually transported millions of barrels of Louisiana oil right into the heart of Texas, at the very moment they were appearing before the State Railroad Commission and demanding that Texas fields be closed down or further reduced so as not to supply the country with unneeded and unwanted oil.

Texas has made every reasonable effort to balance the supply of oil with the demand. It must be admitted that the motive was primarily selfish; that Texas

²² United Oil Field Report, #2628, Jan. 31, 1939.

²³ La. Conserv. Comm. Rep.; Tex. Nwsp. March, 1938.

producers were threatened with price cuts and were trying to save their skins; that they were threatened and intimidated, and that reduction after reduction was made in the allowable and that there was even resorted to the expedient of two full days' shut down out of every week; every effort was made to reduce the supply of oil from the Texas fields and every time the Texas allowable was cut, the slack was taken up by foreign imports, or oil produced from the fields of Louisiana, Oklahoma, New Mexico, Illinois, Kentucky, or Indiana.

PRORATION IS USED AS A PRICE FIXING SCHEME

Proration laws, enacted in the name of "Conservation" and for the alleged purpose of "preventing physical waste" requires the Railroad Commission of the State of Texas to hold open hearings to determine the amount of oil allowed to be produced from each field and well in the state. These hearings are usually held once a month, subject to the orders of the Commission. The hearings are statewide and the records of every hearing for the year 1938 show that conservation and physical waste had little or no part in the statements and evidence presented to the Commission. The discussions in these hearings revolved around the question of price fixing. The allowable production in Texas is supposedly based upon the market demand for Texas oil, and the market demand is supposed to be fixed according to fields in the State.

Having been forced by the majors to accept drastic proration laws as the price for having their oil purchased for a reasonable consideration, the independent producers naturally had "price" and not "conservation," or "prevention of physical waste" in mind when they appeared at these hearings. The majors are always represented, seldom actually debating the subject or speaking unless compelled to, their views being usually expressed by some pseudo independent individual or organization.

Throughout the year 1938 major companies and those supposedly representing them participated in hearings before the Commission and allowables were fixed according to the wishes of the majors, the consideration being the maintenance of the prevailing prices for crude oil.

In spite of the State of Texas yielding to every demand of the major companies a price reduction of crude oil amounting to nearly 20 per cent was put into effect throughout Texas by the major purchasing companies in October, 1938.²⁴ Thereupon, the Railroad Commission invited the presidents and chief officers of every major company in the United States, doing business in Texas, to attend the December Statewide Proration Hearing. The Great Ones came, mostly from New York, and the result was the astonishing spectacle of an agreement of the Railroad Commission of the State of Texas, and the major oil companies of the United States to enter into a plan that would result in the production of a limited amount of oil from Texas, until March 31, 1939, under permission of the Railroad Commission of the State of Texas and of the major companies to pay certain prices for crude oil over that period.²⁵

This is perhaps the first time that there is a printed record made of an agreement between the officers of a sovereign State entering into an agreement with private corporations on a gigantic scale in restraint of trade. These extraordinary proceedings have been summarized by a participant therein, Mr. R. H. Foster, Vice-President of the Landreth Production Corporation, a prominent lawyer, member of the Independent Petroleum Association of America, and member of that organization's Committee of Thirty-six, appointed to study and make recommendations concerning pipe line divorcement.

Mr. Foster, on January 24th, 1939, summarized this proceeding in a letter addressed to Wirt Franklin of Oklahoma, Chairman of the Committee of Thirty-six of the Independent Association of America. He said that at the invitation of the Texas Railroad Commission, executives of the major companies met with the Railroad body in Texas, and, in the main, "recommended the following corrective measures of the oil industry ills:

"(1) That production of crude oil be held within the Bureau of Mines' recommendations, with a shut down of two days per week.

"(2) That the Railroad Commission of Texas announce its proration policy for a longer time than month-by-month, indicating that at least ninety (90) days would be a desirable period for the Commission to use."

²⁴ Oil & Gas Journal, November, 1938.

²⁵ RR Comm. Hearings, December, 1938; R. H. Foster's stmt. Jan. 24, 1939.

Assuming that the foregoing "recommendations" would be "heeded", the majors suggested as the desired position of the industry on March 31, 1939:

"(1) Let crude stocks remain approximately at the level that then existed but that with the commencement of the period of heavy consumption these stocks be gradually reduced;

The extension of these periods was not a point of the Commission's agreement; "(2) To place the refining operations upon a basis that would result in having about 82 millions of barrels of gasoline in storage on March 21."

Mr. Foster in his letter said, "The Railroad Commission of Texas promptly conformed to the recommendations made with respect to reduction and announced a policy for a ninety (90) day period. Thereafter the Interstate Oil Compact Commission met in Fort Worth and announced its approval of such a program. Faith has been kept by those units and especially by the Railroad Commission of Texas.

"The refining branch of the industry has not kept faith and has not made a serious effort to conform to its part of what was intended as a constructive program. The refiners are pulling upon a storage of crude oil at a time when it is not needed, and with what result? It is building up gasoline stocks to a dangerous level when they are not needed and thereby threatening the market."

Thus from a prominent participant in the proceedings we find that the chief officers of the major companies appeared before the Commission and demanded a continuation of the two-day shut-down per week in Texas and restriction of the production of crude oil through the following three months so that they not be bothered by coming to hearings every month, and that no other hearings be held until March; that if their demands, warnings and threats were heeded they would not draw their crude oil from storage but would continue to purchase current production and would not over refine and store up a lot of gasoline and use it as an excuse to depress prices.

The majors in the State and the independents met at the December hearing. The "suggestions" here made by the majors as to what they wanted the Commission to do. The majors "intimated" what they would do about keeping up the price for crude. The Commission followed the "recommendations" of the majors, and no sooner had the "recommendations" of the majors been followed by the Commission issuing its order suspending hearings and ordered continuation of the present plan of allowables and a two-day shutdown, then the majors began to overload their refineries, producing so much gasoline as to threaten to disrupt the market.²⁵

It is not necessary to comment at this time whether this action violated the Anti-trust laws of the United States or of the State of Texas, or whether this action and "agreement" amounted to a violation of the spirit of the conservation laws of the State. The truth is the majors have constantly held the club of threatened price cuts over the humbled heads of terrified independents who dared do anything lest there be brought down on their heads destruction by price cuts of their crude oil production.

The real purpose of proration as set forth in the preceeding is shown wherein the orders fixing allowables have been entered. The first statement quoted is that of Senator Joe L. Hill, a member of the State Senate of Texas, Chairman of the Senate Investigating Committee for investigating the oil business and certain political conditions in Texas. Senator Hill comes from Rusk County and his District includes the great East Texas oil field. Senator Hill said:

"It is the rankest hypocrisy for a man to stand on this floor and say that the purposes of proration is anything other than price fixing. I sit here in utter amazement and see men get up and blandly talk about market demand as an abstract proposition, contending that it has got no relation to price fixing and talking about physical waste. We opposed the Saturday and Sunday shut down when East Texas oil was bringing \$1.35, and we were overruled, because it was contended that to produce it on Saturday and Sunday in East Texas would create a physical waste when the market was good, why won't it create physical waste during the months when the market is going to be bad? And that has got this to consider, that if we hasten in here and pursue a vindictive position toward Illinois where they have got natural resources and had them as long as we have but have been heretofore hunting them; if we come in and say we can't control the situation so we will kick down the playhouse, what kind of a condition are you going to have? I will tell you what you are going to have. You will have Mr. Harold L. Ickes in charge of the oil business; that is what you will have."

²⁵ See Chm. Thompson's *Stme*, AP Dispatch, Feb. 1, 1939.

From the hearings we see that without the shadow of a doubt or the slightest question raised in the minds of any person, the Railroad Commission of Texas has met with producers and refiners, the majors and independents, for the purpose of fixing allowables of crude oil production with never an idea of "conservation" or "prevention of waste" but purely for the purpose of trading with the major purchasers of crude oil on a basis that would bring the best possible price obtainable for that product.

Some statements of participants in the Railroad Commission Hearings in Texas through 1938 showing price fixing as the motive for prorating Texas fields low to secure a better price are as follows:

STATEMENTS RELATING TO PRICE FIXING TAKEN FROM QUOTATIONS FROM STATEWIDE PRORATION HEARINGS

The amount of oil allowed to be produced from various fields in Texas is determined by the Railroad Commission of Texas at Statewide Hearings held as ordered by the Commission usually every month.

At these hearings the Majors are always represented but seldom need openly and actively participate as they usually have representatives among Independents present their views.

The following quotations are taken from hearings as noted below:

March 19, 1938.

Mr. JOHN SCHROEDER (Representing East Texas Independent Petroleum Association): "May it please the Commission, I would like to make a statement in behalf of the membership of the East Texas Independent Petroleum Association.

"Up until about October or November of last year there was a free and open market existing for East Texas Crude Oil. We had many refineries in operation; they took quite a quantity of East Texas crude, and all of that crude oil, over and above the requirements of those local independent refineries, found a ready and immediate market, at not only the market price, but, in some instances, considerably above the market price, being freely distributed among the various major purchasing companies. There seemed to be good feeling existing between all of the groups in that field; every one seemed to be getting along nicely. When, suddenly, out of the clear sky, these independent gatherers of oil, purchasers of oil, were notified by large companies that they could no longer purchase any of their crude. There was no specific reason given by those larger purchasing companies for the refusal to buy this oil, other than the statement that they had all of the East Texas oil that they needed, or some other excuse of that nature, which didn't seem to be founded very deeply upon the facts.

"We are asking you now, gentlemen, to do what you can to bring about a fair and equitable purchase of crude oil in this state, because if you are going to continue to fix the allowables in the various pools to the so-called market demand and thereby fix the price of oil in the State of Texas, it is an obligation that you cannot escape."

May 17, 1938.

Mr. FLANAGAN: "If you will put a tax on the imported oil, and close down the fields for the cold winter month of thirty days, you will then have 11 months of good price and this is what it takes. We can get together and work this thing out with the Commission. What we want is to maintain the oil production to where we can get the most recovery. We must get together and stop so much talking."

Mr. G. C. PARKER (Representing Sells Petroleum Inc.): "We want to go on record as endorsing the shut down order and believe that it is necessary to maintain the price structure."

June 20, 1938.

Mr. DEWEY LAWRENCE (Representing East Texas): "I say this: I believe I reflect the sentiment in East Texas in saying that they are vitally interested in the efforts that you have made to protect the industry from a price cut and that they realize that is what your efforts have been toward, and that the only thing they would ask is that East Texas have its fair and equitable division of that part of the market allowable that you set in trying to keep us within the market demand and without a price cut. That we feel that since the law has guaranteed this minimum and since all of Texas has been developed upon that basis, that you cannot well afford, without inequitably cutting somebody, to do other than to maintain that minimum set by the marginal well law and by the Legislature, which is

the voice of the people. Particularly do we say that in view of the fact that the figures released by your own Commission show that you could give everybody the minimum which the Legislature has provided for them to have and still have over sixty thousand barrels per day that would still be subject to the fluctuations to cut in order to stay within the market demand and to preserve the price structure that you have so zealously fought for, and that you could maintain the minimum guaranteed by law, give everybody their fair and reasonable portion of it, and still have 60,000 barrels upon which you could do, as your Honors, in your wisdom, see right and proper to do to maintain this price structure."

Mr. HAROLD NEELY (Representing West Central Texas Oil & Gas Association): "Not as long as it does not add more than 200,000 barrels a day production for the whole week. In other words, 1,400,000 barrels of oil is all I believe that the State of Texas can add to the present production during the week and not jeopardize the market."

"Any man that is so much of a chiseler and so small when the Commission makes an order of this kind for his own benefit and his own pocket book that will lay that man off and tell him that the Commission has told him to reduce his wages two-sevenths or even one-seventh, he is just too damn small to exist."

Mr. RAYMOND E. BUCK (Representing Barnsdall Oil Company): "It seems to me that if you lift the Saturday and Sunday shut downs, you should inevitably do something to keep the supply and demand in balance. If you don't do that, the results are bound to be a decrease in the price of oil."

"Some pipe lines will probably invoke proration itself; some others would not perhaps. It might result and likely would result in various fields that one producer would thereby get an advantage over another, because the producer who is connected with the pipe line that didn't prorate would produce more oil. We believe that the other states, as have been expressed by other speakers, would follow suit if Texas increased its production. The supply is more than adequate for the present demands, and you have ahead of you the decreased winter demands."

"The Majority of the producers that I have talked with about it feel that the policy of the Commission of Texas is more responsible than anything else for the present price of oil and the improvement in the oil industry."

Commissioner THOMPSON: "Has the price of gasoline gone up?"

Mr. BUCK: "It has not gone up, but the price of crude has gone up."

Commissioner THOMPSON: "Does the little fellow benefit by the increased price of oil?"

Mr. BUCK: "He does; his oil brings him more; gets more for his royalty."

Commissioner THOMPSON: "We know that in our state we have certainly looked after the little fellow. The little fellow I reckon is getting along all right. There are more than there was a year ago by 1,100. They are increasing in number, for which I am thankful, because it looks like we have maintained equal opportunity in the oil business for all. That is what everybody wants, is a fair break."

Mr. R. H. FOSTER (Representing Landroth Pro. Corp.): "If we get the price of crude cut about forty or fifty cents a barrel, they will not only lay off the laborers but the lawyers will get fired too. There won't be anybody left to get anything but the bankers and they will get it all; but the bankers don't want that condition. You know that we are far better off to sell 15 barrels of oil for \$20.00 than we are to sell 20 barrels of oil for \$15.00, and you know that there will be more people hold their places and get better salaries when they are selling 15 barrels of oil for \$20.00 than when they are selling 20 barrels of oil for \$15.00. If we go on and build up this condition in the oil that is on hand until winter, then we will have a sick headache every day. Right now is the time to prevent that condition existing next fall, and we know we don't want to go through another winter such as we had this time. Let's build ourselves into right condition now and then when fall and winter comes maintain that condition and see that we have a wholesome situation right down the line. So, I certainly would like to see the maintenance of the Saturday shut down at least through the month of July and the Sunday shut down indefinitely at least until this oil business gets in that wholesome condition when we can go to bed at night and get a good night's sleep and not dread waking up in the morning."

Mr. MEL DAVIS (Representing the Panhandle District) (Page 57): "I just wanted to say this for the Panhandle. We are 100 per cent in cooperation with the Railroad Commission in whatever they see fit to do to stabilize the industry as they have in the past."

September 19.

Chairman THOMPSON (Pages 29-30): "May be we have got too much regulation."

Mr. JOE ZEPPA (East Texas Independent): "I don't want to get into that. My contention is that there are certain things that the Commission can do and certain things it cannot. One of the things that I don't think you should do is to curtail our own operations in order to keep up the price of crude oil and in order to maintain and make a market for Louisiana, Arkansas, Oklahoma, and Illinois. I think if we take care of our operators they will have to come in. I think we are in the same state today that Chamberlain is in, in that he has tried to compromise so much with Hitler and Mussolini that today they are running the business and he can't do anything about it. I think it is time that we quit."

Chairman THOMPSON: "Just to open up?"

Mr. ZEPPA: "I think it is time to give those wells a decent allowable that will allow them to operate irrespective of the price. If they have to take a cut, then they will have to take a cut, then they will have to take it."

October 15, 1938.

Chairman THOMPSON (Pages 8-9) (Interposing): "You" [Mr. Raymond Buck representing Barnsdall] "talk about production leveling off. Haven't we been leveling it down for a period of years so that storage has been reduced?"

Mr. BUCK: "That is quite true."

Chairman THOMPSON: "Haven't we reduced it about 28 million barrels in the last twelve months?"

Mr. BUCK: "It is our purpose and hope that you will continue that policy."

Chairman THOMPSON: "Make it scarce in order to make it high, is that what you mean?"

Mr. BUCK: "No, Sir, I don't believe that is possible, but that you will necessarily consider the demand in connection with the production in order that we may escape from what appears to be and overcome the 'hunter's market' or collective buying of crude. It is true that there is a better demand for some grades than others, but that probably might be due to economical and perhaps selfish reasons, such as the profit to be made from longer pipe line hauls and putting the demand where selfish interests would be better served. The demand today is the fairest market; if supply and demand were in balance, collective buying of crude would tend to cease and lower prices would not prevail."

Chairman THOMPSON (Page 10): "If you made crude scarce in order to make it high, as your paper indicates, and then the people who control the refining business make gasoline cheap so the little fellow can't get enough money for his gasoline out of the crude to pay for his crude, doesn't that eliminate all of the little fellows?"

Mr. RAYMOND BUCK (Representing Barnsdall Refining Co.) (Page 13): "It is realized that the letter of the law must be adhered to. No one can control price. It never has been done, lowered allowables would tend to increase prices. In other words, every order of the Commission, whether it raises or lowers the allowable production in Texas in some manner affects the price, either increases or decreases it."

Mr. RAY STARNES (Independent Producer) (Page 21): "I have been thrown out of business because I was unable to sell my gasoline for the price that the crude oil cost me."

Chairman THOMPSON: "You could not get enough for your gasoline to pay for your crude?"

Mr. STARNES: "No, Sir. * * * If we keep maintaining crude oil at a high price, with artificial restriction, more than it is worth in comparison with the other products of the nation, which we are doing today, we are heading for destruction. Crude oil is not worth the price that it is now bringing in comparison with corn, cotton, cattle, and sheep. We through our own selfishness are trying to take out of the national income a proportionate part greater than our just share, as against the consumer, and the thing of it is we will be wrecked as the other industries have and are about to be. That is shown in the manner by which artificial restriction has been maintained in Texas; we have closed the market and we have seen that market being taken from us by the adjoining states where they were willing to sell their oil at a lesser price. * * * We know that the South Louisiana allowables are such that no man can know anything about it until the end of the month. They set at one figure and produce at another.

"We are headed for destruction at the hands of the public, and rightly so, as they did to the railroads and the utilities. We must let the market go to where the independent refiner can live. Let's let him live, because in him is the only protection that the public has in the price of gasoline. Whenever you have an independent refinery within reach of the community, you have in that community a respectable price for gasoline to the consumer, and whenever he gets out of

reach you have then at that time broke down any chance that the consumer has for cheap gasoline. Why do the East Texas refiners buy oil down in Louisiana? Because they can't get it in East Texas.

"Van crude, the identical crude of East Texas, is posted at 93 cents, and East Texas at \$1.10, and nobody will buy East Texas crude when Van is at 93 cents, and when anybody has a monopoly like exists at Van he has an advantage."

Chairman THOMPSON. "Is there any Van crude available?"

Mr. STARNES. "No, sir, because it is a monopoly."

Chairman THOMPSON. "You mean held by one outfit?"

Mr. STARNES. "Yes, under contract."

Chairman THOMPSON. "They won't sell to the independent?"

Mr. STARNES. "No, sir."

Chairman THOMPSON. "They post their price lower than the competitive crude and whip the little fellow to death?"

Mr. STARNES. "Yes, sir. Now if the Saturday and Sunday shut downs were off we would develop a market. We have set here and everybody says you go along in East Texas holding the price up; had you not rather have your oil in the ground, but we have lost our market now."

Mr. STARNES (Page 30): "If East Texas was posted at 90 cents everybody would want it, and on the present condition of things it ought to be 90 or 95 cents. If we attempt to get more, we are going to bring destruction upon our heads."

Mr. JAKE L. HAMON (Independent Producer) (Page 33): "Certainly, I think it is no time for hasty action or for us to lose our heads. You three gentlemen have done a grand job in the conservation of the natural resources of the State of Texas. It is unfortunate that this price cut has come along. We all know what has caused it, but there is no reason to suddenly go wild here."

Chairman THOMPSON: "What did cause it?"

Mr. HAMON: "It was caused by the fact that Louisiana, Arkansas, and Illinois were not in the interstate compact, and the other states went along and held the production down to the market demand while they overproduced and sold their oil at a reduced price to get the legitimate markets of the states that did hold down."

Mr. D. H. BYRD (Byrd-Frost Oil Company) (Page 35): "East Texas has been producing 23½ percent of an hour's flow of a well. I ask you gentlemen if that is not kind of low. Just consider that. We got our income cut down 36.51 percent, and then got this price cut on top of that this last week."

Senator JOE HILL, Chairman Senate Investigating Committee (Page 65): "Now, nearly a year ago, a shut down was imposed on East Texas and the umbrella, so to speak, was hoisted over the rest of the State, and, immediately after that shut-down was imposed, the producers in South Texas and the Gulf Coast and in West Texas came before the commission with orders or contracts for sale and secured extra allowables in excess of the reduction that had been imposed on East Texas."

"It is the rankest hypocrisy for a man to stand on this floor and say that the purposes of proration is anything other than price fixing. I sit here in utter amazement and see men get up and blandly talk about market demand as an abstract proposition, contending that it has got no relation to price fixing and talking about physical waste. We opposed the Saturday and Sunday shut down when East Texas oil was bringing \$1.35, and we were overruled, because it was contended that to produce it on Saturday and Sunday in East Texas would create a physical waste. Now, if it would create physical waste when the market was good, why won't it create physical waste during the months when the market is going to be bad? And that has got this to consider, that if we hasten in here and pursue a vindictive position toward Illinois where they have got natural resources and had them as long as we have but have been heretofore hunting them; if we come in and say we can't control the situation so we will kick down the play-house, what kind of a condition are you going to have? I will tell you what you are going to have. You will have Mr. Harold L. Ickes in charge of the oil business; that is what you will have."

"It takes more pounds of cotton, more bushels of corn, more pounds of wool, more of anything under the sun to buy a gallon of gasoline than it ever did before in the history of this country."

"Thousands of our men have been put out of business, thousands of our men in my district, my senatorial district, where the East Texas field lies, and all of our refineries have been shut down and put out of business. You could transport East Texas crude to the seaboard of Texas at a cost of 22½ cents a barrel and refine and sell it profitably, but a cracking plant could not operate in East Texas, and I want somebody to satisfactorily explain that to me

"Another thing, you restrict your oil up there too much—this price cut, Mr. Chairman, was wholly unwarranted, it was wholly unwarranted and the companies who are responsible for it, rich though they may be, haven't got all of the sense in the world and I have seen them cut prices before, and that is the biggest cut they ever cut when in the face of this situation today as it exists with regard to oil above the ground, undertaking to fill their depleted storage at a low price *It ain't going to work.*"

Chairman THOMPSON: "Senator, don't you suppose that some people would also like to buy producing properties now that they have got themselves ready?"

Senator HILL: "You can't run those properties over there on 75 cent crude. Too many of our properties have gone down under the hammer and too much money is still due on those properties over there, and I want to warn you now that something sure is going to happen if any further effort is made to confiscate those properties by artificially dropping the price of crude."

Senator TOM POLLARD: "It is probably true that the interlocking directors or whatever you call them of the Standard Oil groups or these groups who run these banks know about that situation and this price cut might be a result of that information that they have obtained in the bank and their further desire to obtain these properties cheaper?"

Senator HILL: "I know that those things have happened before, that properties have been taken before not only in this state but in other states by reason of information that has come through banking sources. * * * In the first place, Mr. Chairman, the great outrage was committed when a price, when a discriminatory price was set on East Texas crude to destroy the market for East Texas oil."

Chairman THOMPSON: "They made it too high?"

Senator HILL: "When they made it eight cents a barrel over competing oil and that was deliberately done, I am firmly convinced, with the idea of destroying independent producers in the East Texas field. And if that were not true, why was the price set at that figure? Why was the price set at that figure and the price of gasoline kept artificially low? Why was it that you could buy Conroe crude or Van crude at less than East Texas crude? And as a result East Texas oil today, as a result of that discrimination, East Texas oil today is a drug on the market because they have not had the opportunity to get back the contracts that we lost. In the meantime, it is not a wonder that everytime I came down here that you fellows were hot enough to pop corn in a skillet about your allowable in the various fields. You want your fair share today, but what have you done to us throughout the past year? Have we had our fair share based on our ability to produce? We have not. We have taken the licking for Texas, and I want to tell you Mr. Chairman, that we are not going to take any more lickings."

Chairman THOMPSON (To Senator Hill): "We welcome your counsel."

Senator HILL: "I want you to re-establish the oil as of December, 1937, and do away with the special allowables that have been granted the other fields over the state. With regard to the Saturday and Sunday shut down proposition, I don't believe you want federal control any more than I don't believe you want the market demoralized any more than I do; certainly I want to see the consumer pay a fair price for gasoline and no more. Most of the time when the consumer is referred to here he is referred to facetiously, of course."

Chairman THOMPSON: "You don't mean by yourself?"

Senator HILL: "No, Sir, I don't, because I have voted consistently in the State Senate against the hypocrisy that is exemplified in our so-called proration law, and as long as I stay in the Senate I will continue so to vote, and the people just re-elected me for four years. Now then, Mr. Chairman, that is all I ask you to do, to restore the order of December, 1937, and stop granting Tom, Bill, and Jack any special allowables and leave the schedules as they are."

Chairman THOMPSON (Page 78): "The Connally Act has never been exercised anywhere except in East Texas."

Chairman THOMPSON (Page 83): "The Senator points out very clearly that skimming plants are operation in different parts of the State and in East Texas high class cracking plants cannot operate. That is an intolerable situation."

Judge C. A. WHEELER (Page 92): "I think the Commission acted wisely and in the interest of the oil industry of this state when it lifted the Saturday and Sunday shut down for the last Saturday and Sunday of the month from its order. I think it will be just four times as wise if they lift all of the rest of the Saturdays and Sundays of the month."

"It will decrease importation of oil in Texas and stop competition which has affected us very materially within the last few months in Texas. It may decrease the price of oil some. I think the price of oil, and I think those in East Texas have admitted"

Chairman THOMPSON (Interposing): "Judge, you know we have no control over price."

Judge WHEELER: "I know you haven't, but I think this would decrease the price of oil to some extent. I think some of the gentlemen from East Texas state that the price of oil in East Texas is too high and ought to be reduced, and the decrease in the price will unquestionably be passed on to the consumer, and certainly the consumer is entitled to some consideration in this picture. The fact of the business is that it would not hurt any of them to have a reduction of a couple of cents a gallon on gasoline. I believe we would burn more of it if it was decreased just a little bit."

Mr. M. W. BLAIR (Representing the North Texas Oil & Gas Association) (Page 99): "In order to correct the present vicious situation, we insist upon the prompt application of the following remedies by the major companies:

- a Restoration of the price of crude oil.
- b Cessation of buying of underpriced crude.
- c Substantial reductions in well allowables in Louisiana, Arkansas, and Illinois.
- d Curtailment of refinery runs.
- e Discontinuance of pipe line proration."

"Gentlemen, that is before you and you all know it, too.

"Bear in mind, Judge Starnes, we are suffering from the most pernicious pipe line proration in Texas."

Chairman THOMPSON: "He wanted to say there the allowable was 32; you are allowed to produce 32 but you are producing only 16."

Mr. BLAIR: "The companies are only purchasing 16."

"We do not wish to be understood as making an idle threat. With all sincerity and in deadly earnest, if the policy of price cutting is to be pursued, we intent to seek immediate and complete disintegration and divorcement of the production and retail marketing from all other branches of the industry. This remedy is no experiment. We have the experience of the packing industry before us.

"We might also request a full and immediate investigation by the congressional Monopoly Committee."

"I don't think they would like that much."

Mr. DICK SCHWAB (Page 104): "If we take all of the oil in Louisiana and Kansas and prorate it the same way as Texas has been prorated, wouldn't we get to the point where we would hold a fictitious price of \$1.35?"

Chairman THOMPSON: "If you try to prorate to raise the price, the answer would be yes. No matter how wise your scope, the price fixing plans in the past have failed and all others in the future will."

Mr. SCHWAB: "Of course, this is not supposed to be a price fixing scheme."

Chairman THOMPSON: "No, a waste prevention." [Laughter.]

Senator G. H. NELSON (Page 116): "Then you see who the bug is under the chip, don't you. In other words, the suggestion was made here by a gentleman a while ago about some divorcing around here, besides men and women, may come in this state."

Chairman THOMPSON: "Let's talk about it; we are getting somewhere now."

Mr. V. E. COTTINGHAM: "Oil coming from Louisiana by pipe line for the month of August 1, 819,252 barrels, by boat 2,595,545, giving a total for Louisiana for the Month of August of 4,414,197 barrels."

Senator G. H. NELSON (Page 121): "Yes, it still takes the market just the same. I think this is about the information that I wanted and about all I have to say about it. I just feel like that these little independent operators should be taken into consideration, the cost they have of operation and the taxes they are paying and the production that they are allowed, if they are willing to take it on the chin in order to try to hold up the price rather than just to jump without reason into this thing and say we will crowd these other states even if the price goes to a dime and put them out of business. Some of you other gentlemen ought to cooperate to that end."

Chairman THOMPSON: "Your client doesn't want to take it all."

Senator NELSON: "No, sir, but he is willing to take it when the price is leveled off in the pools in this state and when something is done with reference to importation of Louisiana oil by producers who are producing in these same states. It appears to me that if an independent producer in this state does not have any chance to protect himself, what difference does it make materially as to whether a many stays in business, whether he produces any oil in Texas or not, if he is allowed to bring in all he needs from Louisiana, Oklahoma, and Arkansas into this state and refine it over here in the Texas refinery. We hope that the Commission sees fit to institute the order in an attempt to keep a steady market and a steady demand and a steady price on the oil that he might stay in business."

Mr. EDDIE DUNNIGAN (Representing Independent Producers and Royalty Owners of the Panhandle): "We have had several meetings up there, and I have a short resolution that we would like to read and submit the resolution. * * *

"2. That we recommend a continuance for the present of the Saturday and Sunday shut downs.

"3. That we protest against the price cuts of crude oil recently placed in operation in this field as being unjustified in view of the present conditions obtaining and the history of the Panhandle Field.

"4. That we go on record as condemning heretofore existing discriminations between price paid for crude oil by purchasers in this field and in the Mid-Continent area proper, believing that such discrimination has been and is now wholly unjustified. * * *

"6. We suggest to the industry the wisdom of giving serious consideration to the matter of advocating legislation for the separation of crude oil purchasers from the producing and refining business."

Chairman THOMPSON: "What is that?"

Mr. DUNNIGAN: "We suggest to the industry the wisdom of giving serious consideration to the matter of advocating legislation for the separation of crude oil purchasers from the producing and refining business."

Judge J. C. HUNTER (Representing West Central Texas Oil & Gas Association) (Page 130): "* * * If they don't solve it, then not only my district but East Texas and everywhere else will go to the vital point and call for the divorcement of all these different branches in the various phases."

IMPORTATIONS OF OIL INTO TEXAS

From June through December, 1936, there was actually imported into Texas from New Mexico, Oklahoma, Louisiana, and from foreign nations 27,736,133 net barrels of oil, while Texas producers were being starved into submission by a reduction of their allowable. Foreign imports alone ran as high as 194,203 barrels in one month.

All of this oil was moved into Texas, put into competition with Texas-produced oil, some of it refined in the State, and re-shipped, still in competition with Texas production.

In every instance these importations were made by the major integrated companies, owning pipe lines, tankers and refineries.

In 1937, there were imported into Texas from New Mexico, Oklahoma, Louisiana, and foreign nations, 60,550,046 net barrels of crude oil which likewise went into competition with Texas oil.

From January through November, 1938, there came from the same states and nations, 42,994,173 net barrels of crude oil which was put into competition with Texas oil, handled in the same manner.

There is attached hereto schedule furnished by V. E. Cottingham, Director of Production, Railroad Commission of Texas:

Reported imports and exports of crude oil compiled from records of railroad Commission: Outlined below are monthly summaries of the reported crude oil imports and exports into and out of the State of Texas from June, 1936, to November, 1938, inclusive

IMPORTS

Year	New Mexico by P. L.	Oklahoma by P. L.	Louisiana			Foreign by boats	Total imports
			By P. L.	By boats	Total		
1936							
June.....	2,078,080	1,847,766	2,417,297	1,475,290	3,892,587	67,670	7,886,103
July.....	2,187,438	2,743,783	675,992	2,539,273	3,215,265	-----	8,146,486
August.....	2,220,154	2,341,973	1,814,008	1,420,487	3,234,495	136,710	7,933,332
September.....	2,188,501	1,999,221	1,250,699	2,396,395	3,647,094	64,322	7,899,138
October.....	2,376,155	2,462,622	1,388,733	2,502,860	3,891,593	71,443	8,801,813
November.....	2,419,506	2,601,388	1,379,577	1,330,190	2,709,767	194,203	7,924,864
December.....	2,575,737	2,829,855	3,328,167	1,388,327	4,716,494	68,432	10,190,518
Total.....	-----	-----	-----	-----	-----	-----	58,782,254

Reported imports and exports of crude oil compiled from records of railroad commission: Outlined below are monthly summaries of the reported crude oil imports and exports into and out of the State of Texas from June, 1936, to November, 1938, inclusive—Continued

IMPORTS

Year	New Mexico by P. L.	Oklahoma by P. L.	Louisiana			Foreign by boats	Total imports
			By P. L.	By boats	Total		
1937							
January	2,672,734	2,331,654	2,077,100	3,166,544	5,243,644		10,248,032
February	2,649,051	2,098,971	1,665,190	2,831,521	4,496,711	66,982	9,311,715
March	3,079,546	2,864,420	1,883,351	2,920,340	4,803,691	67,208	10,814,865
April	3,041,029	2,693,810	1,327,418	2,704,307	4,031,725		9,766,563
May	3,324,073	2,415,072	1,991,867	3,114,560	5,106,427	67,660	10,913,232
June	3,103,608	2,465,990	1,897,957	3,045,557	4,943,514	69,002	10,582,104
July	3,273,229	2,009,336	2,200,423	2,998,415	5,198,838	67,398	11,448,801
August	3,411,422	2,720,519	2,293,200	2,735,907	4,939,107	80,276	11,151,350
September	3,335,338	2,562,726	2,110,041	2,649,037	4,759,078		10,657,142
October	3,268,470	2,861,484	1,948,983	2,652,914	4,601,897	52,260	10,784,111
November	3,089,059	2,170,687	1,432,159	2,280,381	3,712,540		8,972,286
December	3,221,816	2,340,698	1,833,090	2,533,230	4,366,320		9,928,834
Total							124,579,035
1938							
January	3,238,662	2,453,026	2,530,852	2,082,220	4,613,072		10,304,760
February	2,942,260	2,473,148	1,680,844	2,705,131	4,385,975		9,801,383
March	3,234,142	2,447,020	1,890,805	2,834,041	4,724,846	64,424	10,470,432
April	3,005,461	2,332,988	1,412,071	2,675,608	4,087,679		9,426,128
May	3,090,230	2,142,475	1,872,268	2,438,472	4,310,740	69,941	9,613,386
June	2,758,892	2,152,413	1,759,632	2,680,125	4,439,757	70,263	9,421,325
July	2,963,163	2,375,573	1,772,491	2,886,019	4,658,510		9,997,246
August	3,255,068	2,302,185	1,819,252	2,595,545	4,414,797	102,647	10,074,697
September	3,132,000	2,218,137	1,777,919	2,742,846	4,520,765	250,876	10,121,778
October	3,315,948	2,382,950	1,607,840	2,852,260	4,460,100	367,921	10,526,919
November	3,328,447	2,303,885	1,374,868	2,538,651	3,913,519	289,398	9,835,249
December							
Total							109,593,303

EXPORTS

Year	New Mexico	Oklahoma By P. L.	Louisiana by P. L.	Inter-St. & Foreign by boats	Misc. tank cars	Total exports
<i>1936</i>						
June	—	1,301,198	2,410,340	14,679,584	16,229	18,407,351
July	—	1,637,642	2,552,077	14,196,367	—	18,386,086
August	—	1,488,047	2,355,074	16,172,041	19,573	20,034,735
September	—	2,119,256	2,378,648	13,498,953	10,345	16,007,202
October	—	2,733,822	2,835,826	15,528,423	55,070	21,153,141
November	—	1,652,420	2,778,899	13,844,805	13,453	18,289,577
December	—	1,605,158	3,197,734	16,602,508	40,468	21,445,868
Total	—	—	—	—	—	135,723,960
<i>1937</i>						
January	—	1,940,217	3,300,632	15,936,428	—	21,177,277
February	—	2,458,208	2,460,487	13,552,430	4,499	18,475,624
March	—	775,700	3,550,762	16,789,734	2,993	21,119,189
April	—	1,619,834	3,582,034	15,932,053	38,002	21,171,923
May	—	2,400,713	3,841,505	17,225,277	9,550	23,477,045
June	—	2,328,428	3,354,928	17,491,204	37,024	23,211,584
July	—	1,957,007	3,076,471	18,782,376	30,255	23,846,109
August	—	2,142,864	3,671,559	18,308,101	27,244	24,149,768
September	—	1,890,122	3,596,322	17,669,566	38,687	23,194,697
October	64,613	1,993,798	3,629,296	16,755,179	—	22,442,886
November	110,935	1,901,163	3,278,053	15,174,696	—	20,464,852
December	103,409	1,999,847	2,999,877	15,549,767	—	20,652,900
Total	—	—	—	—	—	263,383,854
<i>1938</i>						
January	60,082	1,961,220	2,925,079	15,122,904	—	20,069,285
February	160,799	1,726,075	2,728,910	14,311,945	—	18,927,729
March	225,425	1,983,431	2,624,714	14,247,627	—	19,081,197
April	266,375	1,612,912	2,543,494	15,197,513	—	19,620,294
May	289,429	1,670,891	2,359,598	15,321,926	—	19,641,844
June	333,567	1,686,664	2,055,563	14,053,135	—	18,178,929
July	291,590	1,699,372	2,451,810	13,990,133	—	18,432,905
August	321,505	1,649,934	2,569,543	14,622,178	—	19,163,160
September	368,421	1,630,028	2,228,925	14,552,146	—	18,779,520
October	394,010	1,937,382	2,288,635	13,777,198	—	18,397,225
November	430,761	1,633,869	2,210,320	14,938,634	—	19,213,584
Total	—	—	—	—	—	212,098,975

When the East Texas field was opened, oil and gasoline were being shipped out by tank-car, truck and independently-built short pipe lines. One pipe line was the Root Pipe Line Company of El Dorado, Arkansas. It was purchasing 5,000 barrels of East Texas crude daily for markets outside of the State. With the squeeze of drastic proration, and the maintaining of high prices that independent concerns went out of business. Another independent was the Atlas Pipe Line Company of Shreveport, Louisiana. That concern was purchasing 10,000 barrels of East Texas crude daily at the time the two-day shut down was put into effect. That line has reversed its market and is now transporting into East Texas its full capacity of Arkansas and Louisiana crude for the independent East Texas refineries. More than a million barrels of crude oil has been run into East Texas through this line to supply refineries located in the very center of the world's greatest oil field. These refineries could buy all the oil they wanted of comparable grade to that of East Texas, for \$1.04 a barrel. The oil was produced with practically no proration or limitation in Arkansas and when East Texas wells were so drastically prorated that the refineries could not get a supply of East Texas oil, (the oil they could get costing them \$1.35 per barrel plus gathering charges) they were glad to buy the oil from other states. In this connection, it must be remembered that the price for oil is fixed by the major pipe-line companies. They fixed the price of \$1.04 for Louisiana and Arkansas oil and in East Texas, where eighty-odd independent refineries were operating, the price was kept at \$1.35 until the refineries were exterminated.

The great oil corporations of this country own oil fields in other parts of the world. At the very time when they were demanding that domestic production be rigidly controlled and curtailed, they were importing from their own fields in other countries tens of millions of barrels to be sold in direct competition with oil produced by American citizens. These companies imported into the United States in 1938, for domestic consumption 27,097,000 barrels of crude oil. In 1938 there were imported into the United States both crude oil and refined products for domestic consumption totalling 52,243,000 barrels.²⁷

The importations of oil by the major integrated companies into Texas from other states and foreign nations which was placed on the market in competition with oil of Texas producers, and the huge importations of crude oil and gasoline from foreign nations to supply the domestic market generally was not the only competition that the starved Texas producer had to face.

The majors imported by tankers a total of 4,796,000 barrels of crude oil and refined products from California to the Atlantic Coast in 1938. California crude received at Atlantic ports in 1938 totalled 624,000 barrels, an increase of 380 per cent.²⁸ This California oil was loaded in tankers, shipped down the West Coast, through the Panama Canal, to the Atlantic Coast and over a period of five years the total importations received in oil on the Atlantic Coast from California amounted to 55,313,182 barrels.²⁹

California has a perfect right to sell her products on the East Coast, and the major integrated companies buying that oil had a right to ship it around the Continent to the East Coast, but all the while, the major companies were doing this, they were howling their heads off demanding that proration be observed, production curtailed and that the supply of Texas oil, normally supplying half the market of the country, was greatly in excess of the demand and must be reduced.

It is most important to observe that the people of California refused to accept proration by a vote at the polls; they refused to be victimized by the plans of monopoly to control their crude oil production. California today had 13,579 wells producing. They produce an average of 50 barrels each. Texas has 85,563 wells. With the plans that we have allowed to be put into effect to control Texas oil production to meet the so-called "market demand" our wells are allowed to produce on an average of only 15 barrels daily.²⁸

Production per well is much higher in the other great oil producing states than in Texas, with the one exception of Oklahoma. Oklahoma is known to be producing about all the oil that her wells are capable of producing.

Louisiana produces 52 barrels per well; New Mexico, 39 barrels.

Oklahoma reached her peak of production in 1927, when she produced 276 millions of barrels. Her production has gone down steadily since. The daily average of Oklahoma in 1931 was 8 barrels per well, and in 1938 it was 8 barrels.

²⁷ National Oil Journal, Jan. 26, 1939.

²⁸ Oil & Gas Journal, Jan. 26, 1939.

²⁹ Report of C. A. McIlvaine, Exec. Secy. Panama Canal, Aug. 18, 1938.

In the same year Texas wells each produced an average of 40 barrels against the allowable of 15 barrels today.³⁰

A simple illustration of the discrimination made by Texas officials against East Texas producers is a table showing the comparison of East Texas with two other Texas oil fields and three Oklahoma oil fields. This table shows the prorated allowable production of other fields in excess of the allowable to East Texas, ranging from 2 per cent to as high as 104 per cent. Every atom of evidence proves the rankest kind of discrimination against the independent in East Texas and in favor of the major company. The table referred to follows:

Table Showing Relative Rate of Production of Oil

[All Figures in Thousands of Barrels]

Name of Field	Year of Discovery	Estimated Total Recovery	Estimated Reserve 9-1-1938	Cumulative Production 9-1-1938	Average Annual Production	Production per Annum	Prorated Allowable Production of Other Fields in Excess of East Texas
East Texas.....	1930	3,500,000	2,625,240	1,234,759	154,345	4.4%	-----
Van Texas.....	1929	280,000	165,647	114,352	12,706	4.5%	2.22%
Ector Co. Tex.....	1936	150,000	127,727	22,272	11,136	7.4%	68.18%
Earlsboro (Okla.).....	1930	65,000	23,274	41,725	5,215	9.0%	104.55%
Oklahoma C'y.....	1928	625,000	199,114	425,885	42,588	6.8%	54.55%
So. Burbank Okla.....	1934	60,000	40,549	19,450	4,862	8.1%	84.09%

NOTE.—3 Representative fields in Texas and 3 Representative fields in Oklahoma.

Compiled from: "Estimate of Petroleum Reserves," by Alex W. McCoy, for use of the Interstate Oil Compact.

In connection with proration it must not be forgotten that the integrated major companies do not confine their activities to one area or one State; that their operations are world-wide. So, at a time when they complain of overproduction in the fields where the independents have secured a toe-hold, they themselves immediately overproduce in fields that they control, whether in the United States or in foreign countries. The net result is the squeeze upon the independent producer who is the victim of proration and it is undisputed that the independent producer is suffering hardships that he had never experienced before.

The situation is exactly like it was in 1906-7, when the Interstate Commerce Commission investigated Monopoly in Coal and Oil. The Commission reported that the possession of pipe lines enabled the Standard to absolutely control the price of crude petroleum and "To determine therefore the price which its competitors in a given locality shall pay."³¹ And "The Standard can, therefore, by pumping this oil to its refineries at Chicago or Cleveland or New York obtain its crude petroleum very much cheaper than its competitor, for it can fix the price which its competitor must pay in these territories and can then obtain the supply for its own refineries largely from some other field where it has established a much lower price. When ready to do so, it can reverse the process."³²

Proration was forced upon Texas by threats of price cuts and loss of markets and these threats have kept the Independent from demanding either the lifting of the Sunday and Saturday shut-downs or an increase from the allowable of his wells in East Texas.

These major companies have intimidated the small independent producer. For months there has been smoldering resentment against Texas, and in October it appeared that the Railroad Commission might issue an order cancelling the weekly shut-downs of production in that field. One of the great integrated companies sent out a letter to all of the producers from whom it was buying oil, notifying them that if the Saturday and Sunday shutdowns were lifted or the allowable increased, it might "tax our line beyond the capacity of such line or in excess of our needs; we would be compelled to disconnect and turn the connection back to you." While couched in a very moderate manner, this notice is nothing more than a threat to small producers and unquestionably was to marshal the independents themselves against the discontinuance of shut-downs.

³⁰ Oil & Gas Journal, Jan. 28, 1932.

³¹ I. C. C. Report to Congress, Jan. 28, 1907.

³² Ibid. p. 6.

A table showing the production of the United States taken from the Oil and Gas Journal of January 26, 1939 follows:

Production in the United States, 1929 to 1938, inclusive

	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	No. active wells Dec. 31, 1938	Dly. av. prod. per well (bbls.)
California.....	292,036,911	228,091,899	188,829,032	178,127,794	173,125,420	175,505,566	207,832,131	214,756,327	238,591,887	249,930,003	13,579	50.42
Oklahoma.....	252,220,474	216,114,501	175,703,818	149,457,231	178,356,419	178,652,012	182,596,874	200,890,705	223,106,788	169,307,196	54,630	8.49
Texas.....	298,113,694	292,392,102	328,608,575	314,378,759	401,808,452	378,233,017	391,592,331	424,396,034	502,967,214	470,760,325	85,563	15.07
Arkansas.....	25,443,570	20,114,732	15,626,407	12,529,870	11,419,635	11,359,458	11,138,586	10,697,345	12,181,083	18,357,235	2,952	17.04
Kansas.....	40,658,170	42,123,347	38,956,338	35,339,206	41,305,768	45,754,117	53,364,446	57,084,490	69,158,432	58,134,090	21,195	7.51
Wyoming.....	19,071,618	17,740,017	14,692,272	12,994,745	11,095,729	12,488,995	13,237,765	14,268,839	19,637,218	18,956,277	3,654	14.21
Louisiana.....	21,137,263	23,881,270	22,856,536	22,467,889	25,629,655	32,478,282	50,286,626	80,807,016	90,427,202	94,955,073	4,911	52.97
Illinois.....	6,356,500	5,631,000	4,717,000	4,801,000	4,252,000	4,472,000	4,351,000	4,439,000	7,426,000	22,800,000	14,300	4.37
Pennsylvania.....	11,804,800	12,918,000	11,862,000	12,395,000	12,677,000	14,572,000	15,899,000	17,041,000	19,173,500	17,449,000	78,950	-
Ohio.....	6,730,200	6,483,000	5,318,000	4,603,000	4,296,000	4,299,000	4,121,000	3,837,000	3,549,900	3,297,200	30,700	1.29
Kentucky.....	7,821,400	7,462,000	6,490,000	6,322,000	4,621,000	4,868,000	3,324,000	3,638,000	3,436,500	3,834,500	14,020	1.14
W. Virginia.....	5,608,600	5,111,000	4,477,000	3,907,000	3,827,000	4,133,000	3,959,000	3,814,000	3,829,000	3,724,740	13,070	1.78
Montana.....	3,827,067	3,203,808	2,847,201	2,320,155	2,398,056	3,509,015	4,367,228	5,798,661	5,799,364	4,824,917	1,753	5.75
New York.....	3,834,600	3,834,600	3,395,000	4,524,000	3,153,000	3,814,000	4,241,000	4,626,000	5,464,500	5,045,200	13,500	1.02
Colorado.....	2,361,595	1,623,639	1,192,862	1,114,064	914,881	1,130,375	1,555,542	1,612,760	1,578,391	1,324,374	194	18.70
New Mexico.....	1,803,261	10,377,415	15,360,383	12,344,684	13,801,278	16,438,878	20,154,321	26,647,459	38,438,072	36,008,527	2,482	39.75
Indiana.....	905,800	900,000	831,000	806,000	732,000	816,000	767,000	792,000	821,200	907,800	1,480	1.80
Tennessee.....	20,000	7,000	7,000	5,000	7,000	11,000	15,789,905	11,977,063	16,410,751	19,138,932	2,132	24.59
Michigan.....	4,391,290	3,589,000	3,733,000	6,834,000	7,863,000	10,566,518	43,000	1,089,113,699	1,264,117,102	1,200,883,399	359,015	9.16
Miscellaneous.....												
Total.....	1,004,266,723	901,740,870	845,803,454	785,304,403	901,273,323	903,104,233	990,620,755	1,089,113,699	1,264,117,102	1,200,883,399	359,015	9.16

¹ The production totals for Oklahoma on Page 137 are incorrect. They should read as follows: January, 16,664,475 bbls.; February, 14,342,492 bbls.; March, 15,700,911 bbls.; April, 14,612,070 bbls.; May, 13,700,078 bbls.; June, 12,723,000 bbls.; July, 13,965,562 bbls.; August, 14,250,035 bbls.; September, 13,609,200 bbls.; October, 13,565,259 bbls.; November, 12,860,160 bbls.; December, 12,183,934 total, 169,307,196 bbls.

The letter in part says:

"Recent newspaper reports have indicated to us that either the Saturday or Sunday shut-down restrictions, or both of them, may be removed by the Railroad Commission at an early date. In such case we would have more oil than we could handle in the field. We regret to have to advise you that it may be necessary, therefore, for us to turn your connections back to you within the next few days, in furtherance of our said understanding with you. We are giving you this notice as promptly as we can to the end that you can be making other arrangements for handling your connections in the event of the removal of either or both the Saturday and Sunday shut-downs." A photostatic copy of this letter follows:

General Offices: Philadelphia, Pa.

SUN OIL COMPANY

SOUTHWEST DIVISION

First Nat. Bank Building, Dallas, Texas

OCTOBER 13TH, 1938.

Mr. J. A. Woods,
% J. B. Woods, Agent,
First National Bank Bldg., Dallas, Texas.

GENTLEMEN: Your lease in the East Texas Field being the A. B. & C. B. Mackey lease, and from which we are purchasing the production, was, as you were advised at the time or before it was connected by us, taken with the understanding that should the Railroad Commission issue orders cancelling the weekly Saturday and Sunday shut-down of production in that field, or increasing the allowable of the leases connected to our line beyond the capacity of such line or in excess of our needs, we would be compelled to disconnect and turn the connection back to you.

Recent newspaper reports have indicated to us that either the Saturday or Sunday shut-down restrictions, or both of them, may be removed by the Railroad Commission at an early date. In such case we would have more oil than we could handle in the field. We regret to have to advise you that it may be necessary, therefore, for us to turn your connections back to you within the next few days, in furtherance of our said understanding with you. We are giving you this notice as promptly as we can to the end that you can be making other arrangements for handling your connections in the event of the removal of either or both the Saturday and Sunday shut-downs.

It is not the intention of this Company to rid itself of any well connections unless same becomes necessary, but this letter is designed solely to notify you of the possibility that the occasion may soon arise under which it will become necessary. We are anxious to service all of our customers to the best of our ability. Therefore, this letter is being addressed to the owners of the last 26 lease connections, with each of which we had the same understanding.

We are enclosing a copy of this letter and would appreciate your approving and returning it to us so that our files may show your receipt of this notice and your affirmation of our understanding.

Very truly yours,

SUN OIL COMPANY,
By: JNO. G. PEW.

Approved:

By: -----

This letter was sent out just before the October 1938 Proration Hearings and it has the desired effect. The bewildered independents, though slowly being starved to death with the average of 14 barrels per day allowable, met with the Railroad Commission in Austin, and they told each other of the dark consequences that would follow should Texas be independent enough to allow its own citizens to produce oil seven days a week, and notwithstanding the importation of oil from other states by these major companies who were represented at the hearing, and notwithstanding the lack of proration in other states, that if Texas should lift the shut-down and increase the allowable disastrous results would follow. They pointed out the cut of 25-cents per barrel that had just been made on Texas crude oil, and freely predicted bankruptcy for independent producers, should Texas have the temerity to defy the "recommendations" of the majors.

The letter just quoted with statements made to the Commission had the desired effect. The shut-down of two days a week was not lifted; the allowable was not increased; the independent producer continued to starve, and he still continues to starve, and the independent's ally, the independent refiner, is practically a thing of the past.

PROPAGANDA AND TEXAS PETROLEUM COUNCIL

It is a well known and understood fact that the American Petroleum Institute and Mid-continent Oil & Gas Association are means for the dissemination of views of the views of the Majors concerning the oil business. They put out vast amounts of propaganda relating to taxation, proration, drilling methods and other artificial control of the oil business. The Majors have invaded every organization undertaken by Independents and have gotten representation in these organizations.

A few years ago there was organized what is known as the Texas Petroleum Council. This organization has been the subject of a special investigating committee of the State Senate of Texas. This Council is a vigilante group to seek out and prey upon the Independent. A description of the Council and its activities as a propagandizing agency can best be stated from the Committee Report itself.³³

"In 1933 a group of prominent and, no doubt, well intentioned oil men conceived the idea of forming the Texas Petroleum Council. The founders of this organization were, no doubt, imbued with worthy motives and conceived it to be their duty to assist and cooperate with the enforcement agencies of the State in enforcing the conservation laws. Accordingly, the Texas Petroleum Council was formed as an 'educational institution.'

"The testimony before the Committee discloses the fact that this concern has not functioned as an 'educational institution,' but rather, on the other hand has functioned as a vigilante group.

"A very large amount of money has been collected by the Texas Petroleum Council, the bulk of which has come from the Major Oil Companies doing business in the State, and this, no doubt, has been due to the fact that contributions have been based upon the amount of oil produced by the respective contributors and the comparatively large group of Independents who originally contributed to the organization have, in the main, withdrawn their support, many of them shortly after the perfection of the organization.

"The Texas Petroleum Council launched a rather ambitious program. They employed the services of a chief counsel at \$15,000 per year, an attorney to represent them before the Tender Board at Kilgore at \$25,000 a year.

The Committee then gives in detail the names of the attorneys and lobbyists employed by the Council, together with their salaries.

"Mr. Fred W. Weeks, of Tyler, at a salary of \$25,000 a year, was the attorney of the Texas Petroleum Council appearing before the board selected at the instance of the Council, passing upon the applications of members and non-members alike. It seems that Mr. Week's duties were appear in the role of amicus curiae to the Board; to protest tenders. He had at his command a corps of investigators privately engaged by himself and paid by the Council. In addition to the investigators, the Council maintained a corps of auditors to check the records of the Railroad Commission of Texas and to exercise a species of surveillance over the acts of the Commission. The records of the Commission disclose that at the instance of the attorney for the Texas Petroleum Council, frequently tenders of non-members of the Council were held up 'for investigation.' There was no testimony to the effect that the members of the Council, or the contributors to the Council, had their tenders held at the instance of the attorney for the Council.

"The testimony further developed the fact that, and the records revealed, the attorneys for the Texas Petroleum Council assisted in the preparation of confiscation suits, furnished information upon which penalty suits were predicated against non-members, and a letter from Mr. Weeks to the President of the Council disclosed the fact that 'I think we can stop these refineries and trucks during the month of April.'

"In the spring of 1936 the services of Mr. Weeks were discontinued and Mr. Sidney Latham, then a member of the House of Representatives of the State of Texas, Chairman of the House Oil & Gas Committee, and a member of the House Oil Investigating Committee, was employed to take Mr. Week's place. Since

³³ Rep. Senate Inves. Com., Senate Journal, 1937.

that time Mr. Latham has represented the Texas Petroleum Council before the Tender Board at Kilgore and at various proration hearings in Austin. He has working under his direction two auditors checking the records of the Railroad Commission and the State Comptroller.

It is known that at the time the confiscation law was being considered, other attorneys representing the Texas Petroleum Council were in Austin; that several members of the board of directors were here, but there is no testimony to the effect that the Council, as such, financed any lobbying activities before the Legislature of the State of Texas. However, the committee was unable to secure the minutes of the Texas Petroleum Council, and the president of the Council, Mr. Wheelock, testified that all of his books and records were produced, which consisted merely of the auditor's reports made by public accountants, some correspondence and expense accounts.

"The committee repeatedly asked for the minutes of the Texas Petroleum Council, but they were never produced, due to either the fact that they were not kept or were purposely withheld.

"It seems inconceivable that a concern handling such a vast amount of money as the record shows, with a corps of attorneys and investigators employed, would have no written record of their activities other than a few letters and expense accounts. It was testified that most of the business was handled by long distance telephone and telegraph and, while it is not the disposition of the committee to be unduly critical of the Council and its officers, it would seem that if this Council were solely imbued with high motives and pure objectives and, in fact, were not engaged in a concerted effort to harass competition, that a more complete and accurate record of their activities would have been available.

"The whole record pertaining to the affairs of the Texas Petroleum Council reveals the fact that they were acting wholly without their charter purposes, to-wit, educational. The correspondence of Mr. Weeks shows conclusively that one of the objectives was the extermination of smaller competitors.

"It is the thought of the committee that the Attorney General should feel free to make a complete investigation of the affairs of this Council to determine whether or not the contributors thereto should be prosecuted for violating the anti-trust laws of the State of Texas. It would seem to the committee that if the activities of the Council were ultra vires that the contributors thereto are liable individually for the acts of the Council, and the charter should be revoked.

"Parenthetically, it is the thought of the committee that the Legislature should devote itself to the duty of strengthening and reenforcing our present anti-trust statutes.

"It is the view of the committee that the cooperation of good citizens in upholding and maintaining the dignity and majesty of the law should always be sought by public officials, and good citizens should be always ready to make such a contribution for the public welfare. The oil business is a highly competitive business, or, at least should be so, and certainly no group should be permitted under the law to organize for the purpose of harassing their competitors under the guise of law enforcement. It is contrary to sound public policy for a group of this kind to engage the services of a member of the Legislature, the chairman of a committee charged with the responsibility of passing on legislation in which they are directly and pecuniarily interested. It seems to the committee that where a former associate of the Attorney General, his former law partner, accepts such employment that he should be willing and eager to make a full disclosure to an investigating committee of his financial affairs, especially when his employment followed so closely upon the induction of his partner into a position of such responsibility."

The Senate Committee condemned the practices above referred to and recommended a continuation of its work so that the evil practices mentioned above might be eliminated, or at least curtailed.

The Senate Committee investigation showed the Texas Petroleum Council to have been amply financed indeed. It held itself out as an agency of Independent oil men, but in fact, soon after its organization it became the creature of the majors. They always had prominent Independents out in front leading the public to believe that the organization was for the benefit of the Independent, but in fact it was an agency of the Integrated Companies used against Independents.

The influence of this organization was unquestionably largely responsible for the drastic proration laws of Texas.

The Texas Petroleum Council was organized in July, 1933. It had plenty of money and between January 1935 and June 30, 1936, a period of eighteen months,

it received in contributions the sum of \$98,057.76. On the latter date it had a balance of cash on hand of \$19,735.17.

Among the contributors during this period were the following major companies:

<i>Company</i>	<i>Amount</i>	<i>Company</i>	<i>Amount</i>
Arkansas Fuel Oil Co.-----	\$1,666.67	Sinclair Consolidated Oil....	\$5,000.00
Atlantic Oil Producing Co.---	7,180.00	Shell Petroleum Co.-----	8,995.47
Continental Oil Co.-----	1,000.00	Standard Oil of New Jersey..	4,500.00
California Company-----	1,375.00	Stanolind Oil & Gas Company.	4,221.35
Ethyl Gasoline Corp.-----	1,500.00	Sun Oil Company-----	7,949.74
Gulf Production Co.-----	4,583.00	Texas Company-----	10,083.33
Humble Oil & Refining Co.---	9,083.33	Tidewater Oil Company-----	2,240.00
Magnolia Petroleum Co.-----	7,750.00	Union Oil Company of Cali-	
Pure Oil Company-----	5,000.00	fornia-----	1,250.00

The Standard Oil Company of New Jersey³¹ that contributed \$4,500 does not operate in Texas but it does control the Humble Oil & Refining Company and undoubtedly is interested in the political situation in Texas. The Ethyl Gasoline Corporation that contributed \$1,500 does not operate in Texas but since the function of the Council was to eliminate Independent refineries in East Texas, it served Ethyl well by hunting our infringements of patents. Nearly every Independent refiner in East Texas has had or now faces a patent infringement suit of some sort.

As soon as the Senate Committee exposed the activities of the Council to the public by the publication of its report, the Council happily ceased to be the espionage system of the Majors and the terrorizer of the Independent.

PROPAGANDA AS TO BENEFITS OF OIL PRODUCTION

The major integrated oil companies, as is well known generally, maintain various propaganda agencies through which they pour propaganda to newspapers throughout the country, designed to influence public opinion against adverse legislation. Most of their propaganda revolves around two questions, taxes and the wealth that the major integrated companies have brought to Texas by coming in and piping out her oil. They naturally resist every effort to tax oil, and they take as much credit as they can for the development of the oil fields. They do not actually claim to have put the oil in the ground, but the inference is clear that the majors alone are responsible for the oil being there.

They point out what the "industry has done for the people." And, in fact, find some pseudo-independent to make speeches and give out interviews showing the great benefits the majors have brought to the State by coming in and taking the State's oil.

By some means or other, tax valuations are always rendered on only a small fraction of the actual value of the property, and the inability or failure of local authorities to receive a fair percentage of their prosperity during the flush production days, has invariably resulted in disaster to property owners remaining in the field after flush production is gone. As a rule, when an oil field is brought in, population is multiplied many times over. It is necessary for local authorities to build new schools, quadruple the number of teachers; create new courts, build wider roads and improve streets. To do these things they have resorted to long term bond issues. It is easy sailing while the fields are producing huge amounts of oil, but as they are depleted, wells abandoned, the remaining taxpayers find themselves burdened beyond endurance to pay bond issues. Very few permanent industries have been established in the oil fields. Notwithstanding cheap fuel in abundance, when the oil boom has subsided the towns built because of the discovery of oil become shells of their one-time glory. Typical of counties that have suffered because of these conditions have been Wichita, Ranger and Eastland, and cities such as the once prosperous city of Cisco in the Ranger field have gone into receivership because of its inability to meet interest on its bonds. Defaults in the payment of interest and bonded debt are the rule, and not the exception.

Typical of statements made concerning taxation was a speech delivered by the Mid-Continent Oil & Gas Association at Dallas on October 30, 1937, when the speaker pointed out that prior to the discovery of oil in Gregg, Rusk, Upshur, and Smith counties, where the East Texas field is located, the valuations aggregated 37 millions of dollars and that they now show a combined assessed valuation of \$262,546,772.³⁴

It is pointed out here that these counties were in a rich agricultural section before independents opened the East Texas field and that the valuations covered

³¹ Speech by H. Hunter, Mid-Cont. Oil & Gas Assoc. Dallas, Tex. October 30, 1937.

all property of every kind in these four counties and included such cities, as Gilmer, Tyler, and Longview, as well as every oil and gas lease, oil well, royalty, and refinery in the field.

The value of oil alone already taken out of the East Texas field amounts to nearly 5 times the total assessed valuation of all property in all of the four counties mentioned. Up to December 1, 1938 East Texas had produced and shipped out one billion, 287 million barrels of oil that were sold for \$1,253,000,000.³⁵

Texas has an estimated reserve in the East Texas field alone of not less than 2 billion 500 million barrels of oil yet unproduced; therefore the total assessed value of all property in the four counties is equal to about ten (10%) per cent of the value of the oil at \$1.00 per barrel.³⁶

Texas has an estimated reserve of oil, in the entire state, yet unproduced amounting to 9 billion 923 millions of barrels; yet the major companies, owning most of this oil, have been able to get their oil valued at such a low rate that it, together with all railroads, farms, ranches, cities, livestock and all other property combined, has an assessed value of only 4 billion dollars.³⁷

The oil lobby at the State Capitol in Austin, joined with the utility lobby, constitutes perhaps the most powerful lobby ever to infest a State Capital. It has been successful in preventing a fair and proper tax being imposed on natural resources produced in Texas, and exported to the world. Texas has a gross receipts tax on oil amounting to approximately only 2¾ cents per barrel. For the fiscal year of 1938, 483,634,665 barrels of oil, 90 per cent of which was shipped outside the State, paid gross production tax of \$15,965,077.08.³⁸ These statements and figures are important in connection with the investigation of the Oil Monopoly when it is considered that at least ¾ of the profits derived from every barrel of oil produced in Texas goes into the coffers of the major integrated companies, owned and operated outside the State of Texas.

It might be well to personally point out here that when Texas was admitted to the Union, she retained all of her lands. Her public lands were set apart to support an educational system. There were about 146 million acres of public lands. Practically every acre of the Public School and University lands of the State of Texas that are known or believed to contain oil deposits have passed from the ownership of Texas to the ownership of the major, foreign, integrated oil corporations. These companies have in the past few years actually entered into a program of acquiring submerged lands belonging to the State in her rivers, bays and the Gulf of Mexico, and practically every acre of such submerged land known or believed to contain oil has been leased by the State and is now held by the major oil companies. Independent citizens have acquired a few of these leases and the State has reserved from 1/16th to 1/8th of the oil as royalty but the value of the royalty is very small indeed as compared to the actual value of the lands.

So, instead of having the best school system in the nation, operated without expense to the citizens and with the State's Public Lands' mineral resources, the school system of Texas for the most part is operated by direct charges against landowners and home owners in the form of high ad valorem taxes and Texas ranks well towards the bottom in quality and grade of teachers, the payments of their salaries, and in education generally.³⁹

Gross production or severance taxes collected by the three great oil producing states are as follows:

Oklahoma, 5 per cent of the value.

Louisiana, (based on gravity of oil), approximately 8 per cent.

Texas, (2-3/4 cents per barrel for crude worth \$1.00 or less, and above \$1.00, 2-3/4 per cent) averaging approximately 2-3/4 per cent.

Though owning more than half of the known reserves of oil and though furnishing approximately one-fourth of the world's supply of oil every year and contributing 42 per cent of the nation's annual needs, and though exporting the greater part of our oil from Texas to the rest of the world, the people of Texas not only sit by and see their market taken by other states and countries, but are content to be discriminated against by the oil industry in sharing the costs of government by refusing to look to the gross production tax for a more substantial portion of our revenue. It is all right for the oil monopoly for Oklahoma to have twice the severance tax that Texas has and for Louisiana to have nearly three times the tax rate on crude that Texas has, but let there be talk in the

³⁵ Report of Comptroller, Texas RR Comm, 1938.

³⁶ U. S. Bureau of Mines, on Reserves.

³⁷ Comptroller, Texas RR Comm. Report, 1938.

³⁸ Comptroller of Texas, report, 1938.

³⁹ State Sup't. of Education, 1938.

Legislature of Texas about raising this tax from the present low rate of 2-3/4 per cent to the rate of Oklahoma or Louisiana, and the majors will put the little independents out in front yelling their heads off in protest, and every newspaper in the state will be filled with propaganda against "taxing the industry to death."

Texas prefers to let the burden of government be carried by high taxes on her citizens and though she owns much of the rich mineral lands from which this vast store of oil comes, she prefers to let her own citizens carry the burden of government rather than to get more substantial rewards from her own rich natural resources. As a result, our schools, old-age pensions, and social security systems constantly lack funds.

Instead of a tax on natural resources, we have one of the highest gasoline tax-rates in the country. Federal rate of one cent and State rate of four cents making a total of five cents per gallon. When it is considered that a barrel of crude oil will produce thirty gallons of gasoline then it will be seen that the Texas citizens prefer to tax themselves at the rate of \$1.20 per barrel of crude oil that they consume rather than increase the rate of 2-3/4 cents per barrel on the oil that is shipped to the rest of the world. Texas is broad-minded and generous that way.

Texas citizens paid in gasoline taxes to the State for the fiscal year ended August 31, 1938, the sum of \$40,551,796.79.⁴⁰ This was mostly used for roads. Verily, Texas is the Land of Golden Opportunity for all except Texas' own citizens.

PRORATION DESTRUCTIVE IN TEXAS

It is no wonder that discrimination against Texas on the part of the major integrated company purchasers of crude oil has brought state officials of Texas now to feel that the need for oil proration has passed.

In public statements, of February 11, 1939, Mr. E. O. Thompson, Chairman of the State Compact Authority, and member of the State Railroad Commission, said:

"There was an emergency with the first proration signed by Governor Sterling, which even required the use of the militia to protect the East Texas field. The Governor knew market demand proration was price fixing, but the situation was so acute he signed the bill. That has passed, and scientific engineering has been the basis of our proration for sometime and should alone prevail in the future.
* * *

"It is an undisputed fact that we cannot prorate the world, and failing, the unprorated countries slip in and under us to win our markets. It is utterly impossible to think we can hold an umbrella over the world and regulate production. Failing, our markets dwindle. California has no market demand law in producing oil, and has been getting along fine.

"This condition cannot long continue, because it would wreck all the smaller operators and only the strongest of the majors could survive. * * * It is an unnatural situation that must be terminated and I have no interest in asking for the re-enactment of the market demand law.

"It is pointed out that the nation's share of the world's oil market has dropped from 71% to 61% and that Texas now produces 400,000 barrels of oil less per day than in 1927, with 12,000 more wells in operation."⁴¹

Further proof of the evil effects of rigid proration in Texas, while other states go unregulated and uncontrolled, are the reports of the Bureau of Mines for the week of February 11, 1939. This shows a loss of crude oil production of the nation of 158,250 barrels. Oklahoma, Kansas, Louisiana and Arkansas gained, while Texas absorbed all the loss and prorated her wells to absorb all the increase from other states. The loss of production in Texas and therefore in the Texas markets, was 193,850 barrels daily for the week ended February 11th. This is a stupendous loss of \$200,000 daily that the people of Texas suffered, amounting to approximately 70 million dollars per year.⁴²

The Chairman of the Texas Railroad Commission said on March 7, 1939 that he favored lifting one of the two-day shutdowns now in effect in Texas, and that that would increase Texas production by approximately 250,000 barrels per day. This is equal to approximately \$250,000 per day. The two-day shut down now in effect is equal to \$500,000 daily. This loss has been borne by Texas producers whose markets have gone to foreign nations and other states. The loss of half a million dollars daily on account of the two-day shut down is equal to \$180 millions per year.

⁴⁰ Report of the Comptroller of Texas.

⁴¹ INS. Feb. 12, 1939.

⁴² Rep. of Bureau of Mines, Feb. 11, 1939.

It can not be disputed that it is high time to change the method of prorating oil in Texas, but so far the major integrated companies that control all the oil business in Texas have refused to be agreeable to any change in the method of administering the law. So far the major companies have preferred to produce oil from their own leases in other states and to bring imported oil into this country because they have been successful in having their "suggestions" as to stifling production in Texas cheerfully and quickly complied with. The people of our State are willing to be considered free and independent and courageous, but unfortunately these characteristics seem to be only things that are written about. The average independent oil man would just as soon think of quitting business as he would in committing economic suicide by opposing the Majors. They have ways of dealing with difficult situations that have proved imminently successful in the past.

IDLE LABOR

The independent producer is not the only sufferer because of methods employed by the major integrated companies, and the Railroad Commission in controlling production; local industries and businesses suffer. They suffer because men are thrown out of work and have no money to spend.

The best authority on the number of men without employment as the result of rigid proration laws and curtailment of refinery operations is perhaps Mr. Harvey W. Fremming, President of the Oil Field Workers International, who estimates that as of October, 1938, 10,000 petroleum workers in East Texas were without employment.

In fact, Mr. Fremming made this statement in connection with his plea that the Saturday and Sunday shut-downs be lifted by the Commission. The statement was not disputed but in fact admitted by the speaker who followed.

Ten thousand men out of work represents perhaps 50,000 men, women and children without income. Many of these people left Texas going to other oil fields where proration was not in effect. Many others undoubtedly became charges on the community.

Mr. Fremmings' statement follows:

"As to the effect upon the workers, the best proof of that question is to go to East today; go to the State's Unemployment Compensation Commission for your answer. There are 10,000 petroleum workers that are walking the streets hungry in Texas today, many of whom can't receive or don't receive unemployment compensation. Reduction of hours to compensate for, let's call it 'Share-the-Work', that Mr. Hoover inflicted upon the American people during his tenure of office as President of the United States, is being practiced in East Texas and started, if you please, by the same company that cut rates on the price of oil in Texas and Louisiana. I refer to the Humble Oil, or I should say the Standard Oil of New Jersey."⁴³

ESTABLISHING MONOPOLY BY UNITIZATION OF OIL FIELDS

The Major Integrated Companies that have demanded and secured controlled production of oil realize that Independent Producers of Texas see how the system has operated to their own detriment. The major integrated companies realize that independent producers in Texas now know that these major companies are producing their own oil in other states, buying cheap oil in other states and bringing that, together with foreign oil into American markets in competition with Texas producers. The burden on the Texas independent is becoming intolerable and the majors know that the independents are going to demand relief.

The Majors have been unable to get absolute control of oil production in any of the oil producing states except Texas and Kansas. In these two states it was accomplished by proration. It was attempted in California, but the people voted the proposition down with a referendum vote. Oklahoma produces about all the oil she is capable of producing. Illinois has refused to prorate and her new fields are being developed. Louisiana has no practicable proration or restrictions and the Majors know they must try another plan.

The objective of the Monopoly is to control production and distribution. The majors know that to control production by proration, thereby making it possible to fix prices of oil from its production to the consumer, is proving unpopular and they have already developed another plan to control production. This plan is called the "UNITIZATION OF FIELDS".

On July 25, 1938, at a meeting of the American Bar Association, the general counsel of the Carter Oil Company, a Standard subsidiary, appeared before that

⁴³ Statement of Harvey Fremming, before the RR Comm. Hearings of Texas, October, 1938.

body and openly advocated compulsory pooling of adjacent tracts in an oil field into drilling units to conform to an established well spacing plan. This was a masterful address⁴⁴ and was an argument in favor of the enactment of laws that would compel all land owners and all lease owners having land in a given area to pool such lands for development as one unit, regardless of individual ownership or property rights.

To illustrate, under the proposed unitization plan for the development of an area, the rule might be fixed by the regulatory body of drilling not more than one well to 40 acres, or 80 acres, or 160 acres; therefore, if the rule be fixed in a field of say 80 acres, the owner of a tract smaller than that size could not drill a well on his own land, even though it might be surrounded by producers and the oil from that land was being drained off by his neighbor. The speaker said that "We are seeking to vindicate the position that adjacent parcels separately owned may be pooled into a spacing so that well spacing throughout the entire pool shall be uniform, and it is, of course, obvious that uniformity of well spacing throughout the pool is indispensable. * * * Bearing in mind that where a small parcel is drilled the allowable shall be reduced on some fair basis, or if a contribution to the cost of a permitted well is to be made, this again must be done on a fair basis, the petroleum engineers have a highly important duty in this business." Which means that if the owner of a small tract of land drills on his land, his production may be reduced to a fractional proportion of the unit prescribed for that vicinity. In other words, if the spacing rule is 40 acres and the allowable is 20 barrels, the owner of a 10 acre tract might be allowed to drill a well, but not allowed to produce over $\frac{1}{4}$ of the allowable, or 5 barrels a day. This, of course, ruins the little fellow. He simply can not drill. Compulsory pooling on a basis of well spacing and for so-called "conservation" is one step removed from the unitization and communal development of an entire field. If this comes to pass, then the owners of a 100 acre tract out of a total producing area of 10,000 acres would simply have his land, and the right to manage and operate it taken away from him under some theory of "Conservation".

The idea back of this big well spacing unit is simply to allow the majors to buy up all the cheap oil producing land and leases they want, curtail production to their own requirements and hold the balance in reserve in the ground while keeping the little fellow who can buy only a few acres of oil leases from drilling on his own land and producing and selling his oil at a fair price.

The speaker said further, "At best the oil industry from the days of Oil Creek has been harassed by the will and purpose of small minorities." From the point of the speaker, it is no doubt absolutely inconceivable that the small minority, constituting the independent producer and refiner, should want to live and to continue to do business and no doubt this expressed desire, though feebly uttered at this time, constitutes harassment of these defenseless majors by the overbearing independents!

By a strange "co-incidence" every recommendation made by the attorney for the Carter Oil Company was embodied in a bill which has just been enacted by the Legislature of Arkansas.

Compulsory Unitization is about to be effected in that State. This is under Senate Bill #26⁴⁵ and the Declaration of Policy recites that the law is enacted for the "protection of public and private interests prohibiting waste and compelling a ratable production from common reservoirs."

Waste is defined, in addition to the ordinary meaning, to include among other things "The inefficient locating, spacing and drilling of wells" and "The abuse of the correlative rights and opportunities of each owner of oil and gas in a common reservoir, disproportionate and unratable withdrawals, causing undue draining of tracts of land." The Commission is authorized and directed to limit and prorate the production of oil or gas or both from any field for the prevention of waste as herein defined and to regulate the spacing of wells and to establish drilling units. The Commission is authorized and directed to prevent insofar as is practicable reasonable avoidable drainage from each unit which is not equalized by counter drainage.

Section 14 directs the Commission to establish drilling units for each pool and defines drilling units as "The maximum area which may be efficiently and economically drained by one well." A drilling unit is not to be in excess of 40 acres. Each well is to be drilled in the center of the unit except in special cases allowed by the Commission.

⁴⁴ Am. Bar Assoc. Proceedings, July 25, 1938.

⁴⁵ 1939 Session Legislature of Arkansas.

The Commission is required to disregard the ancient law of capture and to undertake to determine the amount of recoverable oil in pools and to allow a producer what the Commission says is a just and equitable share of oil and gas in the pool (referred to as a tract's just and equitable share), and that part of the oil allowed shall be in proportion to that quantity of recoverable oil and gas that the Commission guesses his tract in the pool bears to the recoverable oil and gas in the total area of the pool.

The Commission is forbidden to restrict the production from any tract of land in the pool just as long as oil produced from that tract does not exceed the "just and equitable share" of the production of that pool.

The effect of these latter two provisions is illustrated by saying that if a drilling unit is 20 acres, only one well would be drilled on the 20 acres in the center thereof, and the owner of 200 acres could take as much oil as he cared to from one well on the 200 acres, provided the oil taken did not exceed the estimated amount of recoverable oil under the 200 acres. In other words, the quantity of oil taken from either well would be determined by the Commission to be the amount it guesses to be under each well.

It is specifically provided that when two or more separately owned tracts of land are embraced within one drilling unit, the owners may agree to integrate their interests and develop it as a unit. Where the owners have not agreed to integrate their interests the Commission shall "for the prevention of waste or to avoid the drilling of unnecessary wells, be required to take over and develop their lands as a drilling unit." The law actually provides that where the Commission requires such "Integration", some operator may be designated by the Commission to develop the integrated unit. The operator shall have the right to charge to the other integrated owners the actual expenditures required for the drilling and operation of the well, including charges for supervision, and the favored operator shall have the right to receive the first production from the well, which otherwise would be delivered or paid to the other parties jointly, so that the amount allowed by the Commission for drilling, equipping, and operating the well would be paid to the person to whom the Commission had awarded the right and authority to operate the well. The Commission is authorized to sit in judgment and determine the proper costs.

Therefore, we have the spectacle of the possibility of a man's property, with his right to own, occupy, use and enjoy it, taken away from him and drilled for oil and gas without his consent, and without his having any supervision, control or interest in such drilling and production, except to receive some of the net profits, if any, arising out of such enforced operations.

It is provided that if this preposterous regulation should be held unconstitutional, then the owner of each tract embraced within the drilling unit may drill on his tract, but he will never be allowed to receive any more than what the Commission guesses to be the proper proportion of oil produced from a full running unit within the drainage area. In other words, if a drilling unit is 40 acres and the Commission guesses the recovery to be 3,000 barrels per acre or a total of 120,000 barrels, and then a 10-acre tract would be allowed to produce $\frac{1}{4}$ of that, or 30,000 barrels which of course, would be so unprofitable as to prevent any well from ever being drilled on that 40-acre tract.

Any agreement made for pooling leases or royalties or lands by companies to carry out a plan for "cooperative" development are authorized, and "shall not be held or construed to violate any of the statutes of this State relating to Trusts, Monopoly, or a combination in restraint of trade." This gives full opportunity for the violation of all statutes forbidding monopolies and combinations in restraint of trade.

Provisions are made by a series of complicated requirements, whereby any person complaining of any orders of the Commission must be ready for trial making it difficult for any individual to be benefitted by resorting to the Courts.

This law strikes at fundamental laws which have been recognized by the Federal Government and the states relating to the laws of the capture of migratory fluid.

It paves the way for favoritism and unfair advantage of one individual over another. It allows the Commission to indulge in guess work as to the amount of oil and gas that may be found in a given area, and it is pure guess-work because no known method has been discovered that may even reasonably approximate the amount of recoverable oil in a given parcel in an oil field. This act strikes at the very heart of every anti-trust or anti-monopoly statute in the State of Arkansas and specifically allows combinations admittedly in restraint of trade.

The doctrine of correlative rights, the corner stone of compulsory pooling laws,

is founded on a false premise; all factual evidence refutes the doctrine, which necessarily presupposes that the amount of oil or gas in a field is equally distributed below the surface of the ground and that therefore each owner of an acre of land over the pool has a right to the amount of oil in the pool equal to the ratio his acre has to the entire number of acres.

No living engineer, familiar with the development and production of oil and gas, can truthfully say that he has ever seen two wells drilled in a field whose production characteristics were identical.

The Arkansas Law is not the first law of this kind passed by a state. The State of New Mexico passed the identical bill in 1935.⁴⁵ The New Mexico Act is practically identical with the Arkansas Law and at this time the leases in New Mexico are largely held by the major companies and the independent is doing practically nothing in that state.

Such laws strike at the little independent oil man so that, if they should be held constitutional, will unquestionably prevent him from drilling and engaging in the business of oil.

Texas attempted to unitize her gas fields in 1935.⁴⁶ Under that Act the Railroad Commission unitized the Pan-handle gas fields. It allocated "not more than 160 acres in the East Panhandle field and not more than 140 acres in the West Panhandle field to any one well for the purpose of proration."

It ordered that 50 per cent of the reasonable market demand of the field be allocated on the ratio of individual well acreage to the sum of the total well acreage in the field; and 50 per cent of the reasonable market demand of the field allocated on the ratio of the individual well potential to the sum of the total well potential in the field.

This order was questioned by a gas company that owned a pipe line distributing gas. The order reduced that companies allowable production to a volume far below their requirements and would have forced that company to purchase gas from other wells when, if allowed to produce gas from its own wells, it would have had sufficient gas to supply its demand.

The case went to the Supreme Court of the United States.⁴⁷ The opinion of the court rendered through Justice Brandeis upheld the authority of the State to make reasonable proration regulations but said:

"But, obviously, the proration orders would not be valid if shown to bear no reasonable relation either to the prevention of waste or the protection of correlative rights, or if shown to be otherwise arbitrary."

The gas company contended and proved that its operations did not involve or threaten waste and the court assumed that the state would have the authority to prevent actual waste and also that it might constitutionally prorate production in order to prevent undue drainage of gas from the reserves of owners lacking *pipe line connections*. And said, further:

"Plaintiff's operations are neither causing nor threatening any overground or underground waste. Every Well owner in the field is free to produce, provided he does not do so wastefully. He is legally and, so far as appears, physically free to provide himself with a market and with transportation and marketing facilities. There is no basis for a claim that his right, or opportunity, will be interfered with by a disproportionate taking by any one of those who may legally produce."

The purpose of the act was "in short to compel complainants to afford markets to those having none."

The pipe line owner, a private person, is, in effect, ordered to pay money to another private well owner for the purchase of oil which there is no wish to buy. Moreover, he is thus prevented from protecting himself, to the extent that he is able to market his gas, against the losses which the court below finds are occurring and will continue to occur due to drainage from the high pressure areas, wherein plaintiff's wells are located, to the existing low pressure areas, in which are located the majority of the wells not connected to pipe lines.

"The order disables the plaintiffs from performing their contracts except by means of purchases. Resort to those means necessarily results in depriving the plaintiffs of property. Under each statute, if obeyed, the State takes from the pipe line owner the money with which the purchase is made, the money lost through curtailed use of properties developed at large expense, the money lost because of drainage away from his land of the gas which he is forbidden to produce for himself, but must buy from those towards whose lands it migrates.

"Our law reports present no more glaring instance of the taking of one man's property and giving it to another."

⁴⁵ Page 120, Acts, 1935, 44th Legislature.

⁴⁷ *Thompson v. Consol. Gas Utilities Corp.*, 300 U. S., 81 L ed. 510.

The law and order of the Commission was held un-Constitutional and void. These unitization statutes attempt to give the term "waste" a meaning that it does not ordinarily have. They attempt to define "waste" as being something besides actual overground or underground "Waste" by saying that the production of more than a certain amount of oil from a well is waste or that drilling wells on less than a certain amount of ground is waste, etc. Unless the proponent of this plan can get a statute declared constitutional that defines waste as something it is not, then any such statute would be again declared unconstitutional by the Supreme Court it blandly holds that so long as a man does not commit waste, either overground or underground, he has a right to produce and has title to oil and gas in place and, "likewise, to the oil and gas which migrate to formation under his land through drainage from other lands. Under that rule, he may produce all the oil and gas that will flow out of the well on his land, subject to the exercise by other landowners of the same right of capture through drilling offsetting wells, so as to get their full share. This common-law rule, declared in an unbroken line of authorities, has been widely applied."

So in order to upset these common-law rules they must have new definition enacted for waste and have strange interpretations of such statutes, otherwise any such unitization statute would again be declared unconstitutional.

It is easy to picture the plight of the independent in a unitized field where the majors under the authority of the ruling of the Supreme Court in the case above mentioned can say to the independent "We have all the oil we need to fulfill our contracts and requirements. You cannot force us to take your oil and we will contest before the Commission your right to produce enough to make it attractive to any one else to come into the field." It means sacrifice of every independent's property at the buyers price.

OIL RESERVES: CONTROLLED TO PREVENT WASTE, OR TO AID MONOPOLY?

Since oil became a vital necessity, some calamity howlers have been predicting a world shortage of oil. High officials of both State and National Governments have preached Conservation of Oil for Future Generations; they and others have also tried to scare the people about the need of "Conservation" of oil and gas for national defense. Most of these who have attended these Proration Hearings of the Railroad Commission at Austin come out openly and treat these so-called Conservation plans as they should be, price-fixing schemes.

A few of those who fear a national shortage of oil comment upon improved methods of finding oil, in drilling of wells, and the improvements made in production and refining that have so greatly increased their efficiency. None point out that public lands belonging to States and the Federal Government are being leased every day, and that apparently the National Defense does not require the saving of oil on these public lands; none make mention of the fact that though in 1929 the President put an end to all prospecting for oil and gas on public lands of the United States, and that in 1933 the Secretary of Interior decreed that again public lands were open for prospecting so that the resources in states where public lands are situated may be used for the benefits of those States as well as the general public.

In all the discussion of Conservation, there is no mention of physical waste, because oil is not being wasted, or if any, it is infinitesimal.

The National Resources Committee just made a report to the President in which it said:

"Today we are depleting our reserves of oil faster than the rest of the world, and we must consider the possibility of being first among the oil-producing nations to feel the pinch."⁴⁸

This report recommends the modification of the ancient rule of capture, and says that, "It needs to be replaced by a thorough-going law of ownership in place, which would allot to each producer that proportion of the oil and gas in the common reservoir which underlies the land he owns or controls," and recommends the unit-operation of oil and gas pools.

This report further recommends the creation of a Federal Commission to prescribe methods for the production of oil and gas and to "protect the interests of all producers drawing from a common reservoir."

This report does not indicate just how the regulatory officers are going to go about guessing at the amount of oil under a given tract, and it does not indicate any knowledge of the anti-trust laws of the United States; it does not make any reference to the possibility of combinations resulting that will cause the American gasoline buying public to pay extortionate prices for gasoline and oil. It must be

⁴⁸ National Resources Committee Report, 1939.

frankly admitted that if the recommendations of the attorney for the Carter Oil Company, who made similar recommendations before the American Bar Convention at Cleveland in 1938, are sound and that the plan for unitization and monopolization of oil fields is good for the country, then the recommendations for the Natural Resources Committee are good, because they are identical.

It is certainly true that we produce and use more oil than any other nation. Likewise, we produce and use more steel, automobiles, airplanes, coal, iron, aluminum, cotton and meat, and likewise we have produced and continue to produce more oil than any other nation on earth. Those who predict that we will soon have no more oil make such statements recklessly and without regard to past history of the oil industry.

In 1914 our petroleum reserves were estimated at 6 billion barrels. The amount actually produced from those identical reserves since is over 15 billion barrels.

In 1925, the American Petroleum Institute estimated the reserves at 5 billion barrels, when actually 10 billions were later produced from those reserves. In 1934, the United States Geological Survey estimated the reserves at 13 billion; in 1937 the American Petroleum Institute estimated the reserves at 13 billion barrels.⁴⁹

On September 1, 1938, Mr. A. W. McCoy reported to the Governor of Oklahoma an estimated reserve of 13 billion 500 million barrels, an all time peak in reserves.

The reserves are still increasing, and before there can be a decline, the peak must be reached. No doubt it will take as long to reach the decline as it will have to reach the peak. This leaves out all consideration of our coals and oil shales, and the possibility of developing new sources of power that may displace oil.

On January 1, 1939, the Bureau of Mines estimates the reserves at 14 billions or better, and on February 16th, 1939, the American Petroleum Institute through a committee of the greatest experts of the country, estimated the reserves at 17 billion 505 million barrels. This report, by states, follows:

UNITED STATES OIL RESERVES RAISED TO 17,348,146,000 BARRELS BY API

[Taken from Fort Worth Star Telegram, February 27, 1939]

NEW YORK, Feb. 27.—Proved petroleum reserves of the United States have increased to a new record total estimated at 17,348,146,000 barrels as of Jan. 1, 1939 the annual report of the American Petroleum Institute's committee on petroleum reserves asserted Monday.

The new estimate, which refers only to reserves already proved by drilling and covers all grades of crude oil and distillate known to be recoverable under existing economic and operating conditions, reveals a net increase of 1,840,878,000 barrels over the 15,507,268,000-barrel estimate reported for Jan. 1, 1938.

Additional information and further development during the past year necessitated an upward revision of the 1938 estimate by 2,243,571,000 barrels, the report explained. Discoveries of new pools and of new producing horizons in old pools were reported to have added 810,493,000 barrels, making a total gain over 1938 of 3,054,064,000 barrels. The 1938 production of 1,213,186,000 barrels was deducted, making the net increase 1,840,878,000 barrels.

Texas was reported to have the largest reserves of any State, estimated at 9,447,764,000 barrels for Jan. 1, 1939, as against 8,247,928,000 barrels a year ago. California's reserves were placed at 3,188,763,000 barrels in the new report as compared with 3,063,142,000 barrels in 1938. One of the largest gains due to new discoveries was reported for Illinois, developments in that newly-active producing area increasing to 242,847,000 barrels reserves estimated for Jan. 1, 1938, as totaling only 40,884,000 barrels.

The committee stressed the fact that its estimates refer only to reserves already proved by drilling and explained that pools tested only by one or two wells had been assigned relatively low reserves which considerably may be augmented by later development. Excluded were reserves which may be found in areas known to be favorable to oil accumulation, but as yet untested. Every effort was made to obtain a fair, unprejudiced and representative opinion, the report added, with each member of the committee on petroleum reserves appointing sub-committees in each district to compile and to study necessary data.

All factors pertaining to the various pools were considered, examined and adjusted in the light of new information, it was said, and the complete data com-

⁴⁹ API, Petroleum Facts & Figures, 1937, page 102.

piled by more than 60 experienced geologists and petroleum engineers assisting in the work finally and carefully were checked by the committee itself.

The report was signed by the chairman, J. Edgar Pew of the Sun Oil Company, Philadelphia, and the members of the committee on petroleum reserves, as follows: R. F. Baker, the Texas Company, New York; L. T. Barrow, Humble Oil and Refining Company, Houston; Frank R. Clark, Ohio Oil Company, Tulsa, Okla.; G. Clark Gester, Standard Oil Company of California, San Francisco; F. H. Lahee, Sun Oil Company, Dallas; J. M. Sands, Phillips Petroleum Company, Bartlesville, Okla.; Fred Van Covern, American Petroleum Institute, New York; Theron Wasson, Pure Oil Company, Chicago; and Fred E. Wood, Standard Oil Company (Indiana), Chicago.

These figures themselves prove that predictions that we would soon be faced with a shortage of oil are merely wild guesses on the part of those making such statements. It must be borne in mind that the reserves mentioned are the known reserves, and do not take into consideration that new fields and deeper sands in oil fields will be discovered. When it is considered that the estimated reserves have jumped from 5 billions to nearly four times that much since 1925, it is further evidence that statements relating to shortages of oil are purely guess work. None who predict such shortages take into consideration substitutes for crude petroleum or improved engines for the use of gasoline and oil.

There has been much talk in high places about saving oil "for future generations." What about this generation? This generation is still facing the world's worst depression. Is it the purpose of those who would control production of oil to make it so high that the sufferers of depression, this generation, can not use oil?

Those who are talking about conservation of oil must mean hoarding of oil. That is a good term, hoarding, and means that by taking a great supply of oil off the market that they can control the market sales at such a high price that millions of sufferers from the depression simply can not use it. When they talk of saving oil for future generations, they would penalize those who are trying to recover from the depression. The term "Conservation" as applied to the oil business simply means MONOPOLIZATION.

No sensible person advocates the producing of oil in any way that will result in physical waste, but "Conservation" as practiced in the greatest oil state of the Union means nothing but price fixing.

What this country needs to be concerned about is physical waste, and nobody makes the charge that drilling or producing operations as conducted are so inefficient as to cause waste. If the country needs oil for national defense, then its experts know it, and additional national reserves of petroleum would be held, or public lands set aside as reserves, and adequate provisions made to compensate states for the loss of production from national reserves in such states, also adequate reserves of fuel oil could be purchased at reasonable prices and stored around naval bases and kept ready for use without any physical waste.

There has been waste of 200 million dollars in unnecessary drilling in East Texas. This is true, but they were drilled because of the constantly lower amounts of oil which the operators were and are allowed and permitted to run from their leases.

Just what bearing does correlative rights in an oil pool have on true conservation?

Just what bearing on conservation and prevention of waste has the utilization of a field, or compulsory pooling, or proration?

These questions can have no bearing upon the question of physical waste. They do have all to do with the monopolization of the oil industry.

You let compulsory pooling or compulsory utilization be put into effect in a field and there will be seen in every field what has been seen in East Texas. The "Allowable" from the unitized or compulsory-pooled fields will be low where the majors do not own the field; it will be high where the major integrated companies do own the pool or field, if it works the same as in Texas. There will be seen, as in East Texas, the starvation of the independent producer, who is allowed to produce a meager supply of oil and his property will be purchased in the Bankruptcy Court by the Majors. If his production is held so low that he can make no money producing oil, then his property naturally will be for sale. If the production is very low, then the prices of the property will naturally be cheap.

Price fixing and a planned economy for the benefit of monopoly is sailing today under the false colors of "Conservation". The term "waste" is being used these days in connection with every scheme designed and intended to prevent independents from staying in or coming into the oil business.

American Petroleum Institute Estimated Proved Petroleum Reserves in the U. S.

[Barrels of 42 Gallons]

State	Proved Reserves as of Jan. 1, 1938 (1)	Revisions in Proved Reserves (Incl. Extensions) Known on Jan. 1, 1938 (2)	Estimated Proved Reserves In New Pools and New Pro- ductive Horizons Discov. in '38 (3)	Total Columns 1, 2 and 3 (4)	Production Dur- ing 1938 ¹ (5)	Proved Reserves as of Jan. 1, 1939 (6)
Eastern States:						
Illinois.....	40,884,000	17,828,000	208,064,000	266,776,000	23,929,000	242,847,000
Indiana.....	2,622,000	4,178,000	200,000	7,000,000	9,969,000	6,031,000
Kentucky.....	38,365,000	43,366,000	5,000,000	43,366,000	5,821,000	37,545,000
Michigan.....	49,181,000	-3,451,000	16,230,000	61,960,000	19,211,000	42,749,000
New York.....	60,535,000	-15,000,000	45,000,000	50,535,000	5,045,000	40,490,000
Ohio.....	28,436,000	1,200,000	1,200,000	29,636,000	3,298,000	26,338,000
Pennsylvania.....	287,886,000	-70,000,000	217,886,000	217,886,000	17,426,000	200,460,000
West Virginia.....	28,152,000			28,152,000	3,684,000	24,468,000
Total.....	536,082,000	-65,245,000	229,494,000	700,331,000	79,383,000	620,948,000
Central and Southern States:						
New Mexico (S. E.).....	541,173,000	192,024,000	409,000	733,597,000	35,401,000	698,196,000
Texas.....	8,247,928,000	1,443,521,000	231,929,000	9,923,378,000	475,614,000	9,447,764,000
Oklahoma.....	1,212,252,000	98,400,000	20,600,000	1,331,252,000	174,882,000	1,156,370,000
Kansas.....	601,317,000	5,700,000	63,800,000	671,817,000	59,587,000	613,230,000
Arkansas.....	192,101,000	-20,978,000	35,200,000	206,323,000	18,077,000	188,246,000
Louisiana.....	713,434,000	335,704,000	85,870,000	1,135,008,000	94,812,000	1,040,256,000
Total.....	11,508,205,000	2,051,431,000	445,799,000	14,005,435,000	858,373,090	13,150,062,000
Rocky Mountain States:						
Wyoming.....	285,922,000	14,015,000	200,000	280,137,000	19,004,000	261,133,000
Montana.....	109,378,000			109,378,000	4,907,000	104,471,000
Colorado.....	19,125,000			19,125,000	1,412,000	17,713,000
New Mexico (N. W.).....	5,414,000			5,414,000	358,000	5,056,000
Total.....	399,839,000	14,015,000	200,000	414,054,000	25,681,000	388,373,000
California.....	3,063,142,000	240,370,000	135,000,000	3,438,512,000	249,749,000	3,188,763,000
Total United States.....	15,507,208,000	2,243,571,000	810,493,000	18,561,332,000	1,213,186,000	17,348,146,000

¹ These are United States Bureau of Mines figures. No reserves are included for the States of Missouri, Tennessee and Utah for which the Bureau of Mines reports 68,000 barrels production in 1938.

Actual waste of oil involved in production is not determined by whether one well is drilled to a city lot, or 160-acre tract. Drilling too many wells is not a waste of the natural resources themselves. It is the economical waste of capital and sensible men are not going to drill any more wells than they need to produce the maximum amount of oil, securing therefor a fair return on their investment. With rules and regulations made restraining production to prevent physical waste only, there will be no unnecessary drilling.

As for utilization or compulsory pooling, such as the law in Arkansas now provides, that of course involves the regimentation of the oil industry itself and the taking of another man's property under a claim of pretended right, and when this becomes general, there will be no more independent oil men, or any independent men, if the same principle is applied in other industries.

Proration for the purpose of prevention of waste, whether underground or above ground can not be justified as a sound economic principle on any basis. It was referred to by an Oklahoma jurist in the following vigorous language:

"In my opinion proration of oil was born of monopoly, sired by arbitrary power, and its progeny is the deformed child whose playmates are graft, theft, bribery, and corruption. It is evolution's experiment."⁵⁰

It is admitted by everybody that proration is intended to prevent the operation of the law of supply and demand. It is attempted to be justified on the grounds that it is a protection to the small stripper-well owner who has to bear the burden and move his oil into competition with great flowing wells, but in this connection, the proponents of proration for price fixing never point out that the stripper wells are not destroyed but can be made to flow by a re-pressure, water drives, and other improved methods of production.

Price control of a commodity by curtailing production is an inherent evil of monopoly and has never failed to work to the destruction of the business of those engaged in the production of that commodity.

But, in the maintenance of an arbitrary price, fixed regardless of the law of supply and demand, the oil producer is feeding upon a drug that can not be taken from him except by degrees. The morphine of proration and prices, has its antidote and this is more freedom of competition. If the patient can have administered to him strong doses of this counter-vailing remedy, the ancient laws of economics will soon restore a proper balance of supply with the demand, without any serious upheavals in the industry, and without any further need of the dope of price-fixing.

Give the wildcatter, the pioneer and the adventuresome independent a chance, without hedging him in with drastic price fixing regulations and he will continue to supply the world with oil at reasonable prices!

REFINING

In considering refining it might be well to first mention a few statistics. According to the Bureau of Mines' reports there are 561 refineries in the United States.⁵¹ They have a total refining capacity of 4,373,701 barrels daily. Texas has 30% of the total capacity, the East Coast, 15%, the Great Lakes Section, 13% and California, 20%.

All of the refining areas East of the Rocky Mountains are connected together with an integrated system of pipe lines.

The refining industry is even more closely controlled by the major integrated oil companies than the other branches of the oil business.

An analysis of the refining industry is made in a splendid article by Mr. George Reid in the January issue of the "Refiner". In it is discussed the position of 23 of the Major integrated companies. They have strong inter-company affiliation or working arrangements, or ownership. These 23 companies now have 81.24% of the total refining capacity of the United States and have 87.51% of the total reported cracking capacity.

As production of oil has been controlled by proration in greater production states, these integrated companies, with unlimited supplies of crude oil for their own needs, have increased their refining capacity for that group of integrated companies from 3,248,650 barrels a day in January, 1933, to 3,554,600 barrels daily at this time. They have increased their cracking capacity from 1,834,330 barrels daily in January, 1933 to 2,229,530 barrels a day at this time.⁵²

During the past year there has been added a total capacity of 283,020 barrels of new refining capacity. The 23 companies, stated by the "Refiner", are shown to have erected 224,200 barrels or approximately 80% of the new refining capacity.

⁵⁰ Hon. Fletcher W. Riley, Chief Justice, Supreme Court of Oklahoma, in 19 Pac. Rep. 2nd L. Ed. p. 353.

⁵¹ Bureau of Mines' report 1938.

⁵² Bureau of Mines', 1938.

There are approximately 561 refineries in the country. The 23 Integrated Companies own 151 of these refineries. Mr. Reid says: "Despite the fact that 23 companies and their subsidiaries control such a large percentage of the industry's capacity, there remains the interesting fact that a remainder of 328 refineries in this country are operated by 296 companies. This gives us a total of 335 companies operating refineries in the United States."

The capacity of the 328 plants that are owned by independent companies and individuals in this section of the United States total the very considerable amount of 922,423 barrels of oil a day.

103 of these Independent refineries have cracking plants in connection, leaving a total of 225 refineries among the small Independents which do not have cracking plants. Of the Major Integrated Companies 30 of their own refineries do not have cracking facilities. In fact, more than half of the operating plants in the country, amounting to 225 plants, do not have cracking units.⁵³

The Majors always contend that their refineries are the most modern and up-to-date and that the Independents are not. Undoubtedly the Majors do have an advantage in many respects, in the ownership of improved patents and otherwise controlling new inventions. But in spite of the high royalty costs for the use of patents, the Independent Refineries compare very favorably in efficiency with the Major Companies.

EAST TEXAS REFINERY SHUT DOWNS

When the great East Texas oil field was discovered local citizens and experienced Independent refinery operators began to build refineries in and near that field. There were more than 100 of such refineries built expecting to establish local industry and that a bountiful supply of reasonably priced crude oil could be obtained. These refineries were built with local capital and there has been invested in them an amount conservatively estimated at 15 million dollars.

The Bureau of Mines' reports 155 such plants erected as of January 1, 1938.⁵⁴ It is believed, however, that there may be some duplication in the names of the refineries listed by the Bureau of Mines.

The Independent refineries in East Texas were never able to get a reliable and dependable supply of crude oil. By the time they were beginning to get their plants completed, proration of the field was put into effect and the supply of their crude oil was more rigidly curtailed. First, by the force of armed troops under the orders of the then Governor of Texas and then the enactment of rigid proration laws.

The Major Companies operating within what might be called the East Texas influence, that is in areas where East Texas oil was easily available, were always able to get all the oil they wanted and operated practically to full capacity.⁵⁵

An interesting comparison of the operations of the Majors with the Independents might be well made at this time.

January 1, 1932, the Major Refineries using East Texas crude had a total straight-run capacity of 714,600 barrels, operating 99.6% full capacity.

The Independents located in the East Texas field had a total straight-run capacity of 71,000 and operated on 62% capacity. On January 1, 1936, and the same date of 1937 the Majors were operating 100% capacity while the Independents were operating on those dates only 46% of their capacity due to curtailed supply of crude and lost markets.

The refining capacity of the Majors gradually increased in the areas mentioned from 714,600 barrels from January 1, 1932 to 943,000 barrels on January 1, 1938, operating practically their total capacity all the while.

The Independent refineries increased their daily capacity of January 1, 1932, of 70,000 barrels until when on January 1, 1936, Independent had a total straight-run refining capacity of 200,200 barrels located in the heart of the greatest oil field in the world, but of that capacity they were only able to operate 46% of the time.

This condition grew worse and during the year 1936, while the Majors had increased their refining capacity, the Independents lost that year in the East Texas section, 36,300 barrels of their daily capacity. Conditions grew worse for the Independents in 1937 but improved for the Majors. The Majors that year gained in capacity 54,000 barrels daily and continued to operate 98% capacity. The Independents' capacity dropped to 91,355 barrels operating 55.4% of the time. This was a loss of over half of the Independent refining capacity in less than two years time.

⁵³ Bureau of Mines' and "Refiner" of January, 1939.

⁵⁴ Bureau of Mines' report of Jan. 1, 1938.

⁵⁵ Bureau of Mines' and "Refiner", January, 1939.

Conditions grew worse and worse for the Independent Refiners in East Texas during the year 1938 and they are practically all out of business now. Their plants have been mostly sold for scrap iron.

There are being operated today out of the original number of refineries only two that are regularly operating on East Texas crude oil. They have a straight-run capacity of only 11,500 barrels.

There is one other refining company operating with a straight-run capacity of 7,655 barrels but operates on oil produced in the Lisbon and Cotton Valley fields of Louisiana and transported into East Texas. This one concern also buys a small amount of East Texas Crude.

There are four other refineries with a total straight-run capacity of 13,500 barrels that are operating, though not full capacity, on what is known as "confiscated crude." "Confiscated crude" is oil produced in excess of the amount allowed under proration that has been confiscated by suits of the State and sold. These four concerns have purchased this supply of oil at Sheriff's sales and are now operating on that. The total amount of oil confiscated and sold during the year 1938 through January 1939, amounted to 1,345,922 barrels. This oil was not sold, however, to the four concerns just mentioned. When their supply is exhausted it is assumed and believed that these four plants will be forced out of business as the Major Integrated Companies have now secured all the connections and purchased all the oil formerly being purchased by the Independent Refineries now closed down.

The refineries of the Major Companies that are compared to the Independents are within the areas served by East Texas oil. The refineries of the Majors include those on the Gulf Coast and nearby Louisiana. These all use East Texas Crude and are competitive with East Texas Independent refineries.

Thus you have the spectacle of more than 100 Independent Refineries going into the junk heap though situated in the heart of this great oil field that is capable of producing 2,250,000,000 barrels of oil. We see local industry home-owned destroyed and exterminated. We see the investment of thousands of individuals wiped out by the process of strangulation and their properties becoming junk heaps not fit for use anywhere. There is no relief that can be given to these Independent manufacturing industries nor perhaps will their investment ever be worth five cents on the dollar. No matter what action any legislative body took it appears that these investments and this property are destroyed, because it would take time to enact remedial laws and by that time the equipment would have deteriorated or become obsolete.^{55a}

Many of the plants have actually been sold for junk. Gathering lines have been taken up and sold as secondhand pipe. Many of the plants have simply shut down by the owners who are bewildered and do not know what to do and have simply locked their gates hoping that some miracle will happen and their investment can be saved. Their employees are searching for other employment.

The proponent of a monopoly system in the oil business who feels that there is no place in the industry for the little man will say that these refinery operators were inexperienced and that their refineries were junk to begin with, and that they were inefficiently and uneconomically operated, and that these are the reasons why their millions of local investments were lost. Every word of this is untrue. Refineries in East Texas were built and operated by experts and men experienced and known as among the best independents in the refining industry.

These experienced Independents went into East Texas because of the bountiful supply, as they thought, of oil. They had no fore-warning of their own crucifixion and destruction. They went to East Texas because they were in the oil business and they, of course, wanted and still want to continue in the oil business. They have spent their money and it is now too late for them to have benefitted by the bitter experience of their predecessors in other great oil fields where the Major Integrated Companies get control. One is Ranger which enabled the Independent to flourish a while but as soon as he began to get well started, price control and price wars put him out of business and every Independent refinery built for Ranger crude in those days either became the property of a Major Company or went into the junk heap in 1921. Then the process of extermination was very simple. The price of crude was held at a high level; the price of refined products put below the price of production. Buckle and tongue would not meet so the Independent went to the bankruptcy court. The system is a little more refined these days. There are now boards, committees and commissions with false theories of conservation to aid monopoly, and the methods of destruction employed are slow strangulation and anaemia of gradually decreased production, deadened by the narcotic of price fixing for crude oil. The result is the same.

^{55a} Bureau of Mines' report, 1938.

The advocates who propose to allow only the Major Integrated and powerful corporations to engage in refining business, charge that the Independent operates inefficiently and that his plants are nothing more than "Coffee Pot" refineries. Let the Bureau of Mines' speak on that with respect to East Texas. Its reports will show that of the East Texas refineries, there were 21 of the principle refineries in East Texas equipped with cracking plants.⁵⁶

A cracking plant is expensive and when operated with a straight-run plant is usually considered a badge of good refining. This is not an unvariable test of the efficiency of a good refinery, because it must be borne in mind, that of the 561 refineries in the country a total of 225, well over half, have not been provided with cracking units.⁵⁷ There was something else besides lack of experience, ability, capital or willingness to quit, on the part of the Independents operating in East Texas, that forced them out of business. It was proration, price squeeze and gasoline wars of Majors.

THE SQUEEZE OF THE INDEPENDENT REFINER BY PRICE RIGGING

One might inquire that if the Independent Refiner of East Texas was not put out of business because of incompetency, inefficiency, lack of capital, then just why have their refineries been shut down and why are they unable to operate profitably when the Major, Integrated companies are so successful.

The United Oil Field report has given a general outline which might be well quoted at this time.⁵⁸

It suggests that "gasoline is and has been selling below cost for a long time." However, quite the opposite is true. A brief review of what time has wrought in the past few years will best explain the statement.

"Up to the arrival of Seminole in 1927, practically every integrated company was an incidental producer, depending largely on crude purchasers for its supplies. But immediately thereafter, several major pools were discovered in rapid succession. This caused two important changes:

"1. Price of crude collapsed, producing oil became unprofitable. Properties became cheap, and major companies began to acquire production. And today they are all preeminent producers. In fact, two produce more crude than they require, namely, Continental and Phillips, notwithstanding both are very extensive marketers. Standard of California, Gulf and Pure now produce over eighty per cent of their needs.

"2. Because several large pools were discovered within a short period, capital was impressed that petroleum technology had arrived. That fields could be located by careful planning and study, that no longer were chance and wiggle stocks necessary to finding new reserves. Therefore, companies had no difficulty in securing money to develop their own reserves. And especially since East Texas arrived, the integrated company without ample production of its own has become the exception.

"The consequence of the change is that most integrated companies are purchasing less and less crude, relatively. This has caused them to become semi-independent of posted prices. They are now more concerned with production costs. For they must keep these costs down in order to retain an over-all profit.

"The statement has been made daily since the Madison Trial that gasoline is being sold below cost. To analyze the statement correctly, it is well to inquire 'Whose cost'. If it refers to those buying their entire crude supply, the statement is irrefutable. If it refers to an integrated company that buys only a small percentage of its requirements, the statement is patently incorrect. For nearly every integrated company is realizing a profit from the sale of gasoline. This assertion is beyond discussion, it is too easily proved.

"True, the price of gasoline in some areas is below some companies' costs. But it could be otherwise, because the competition for gallonage goes on without abatement or quarter. And the effect of this struggle has been to place ninety per cent of the gasoline market in the hands of those competitively able to stand the strain."

This report further stated in July, that

"This month, for export, one integrated unit sold two cargoes at \$1.44 aboard ship. Another sold two at \$1.45 aboard ship. These prices are at least ten cents below the market, if accepted gathering and terminal charges and posted tariffs are added to the field posted price.

⁵⁶ Bureau of Mines', 1930.

⁵⁷ "Refiner" January, 1933.

⁵⁸ United Oil Field Report, August 24, 1933.

"The consequences of selling crude at these quotations may prove to be much more detrimental to these companies than the derivable profit. Because the transactions appear to be patent price rigging. And with all the investigations that will be conducted before the year closes, such ineptness will prove embarrassing at least and may prove expensive."

In an Editorial of the Kilgore Daily News of April 22, 1938, it was said:

"A combination of tragic events have just about closed what was once East Texas' greatest industry—refining. This week (July, 1938) only eight refineries were reported operating, seven being independents and the Sinclair plant being the other.

"Merchants of the oil field area have been the first sufferers as the result of closed refineries. Remember the day when Gladewater newspapers and business houses boasted that Gladewater was the 'Independent Refining center of the nation'. Today there is not a single company operating a refinery regularly in Gladewater. The biggest plant there was sold last week for junk; a plant that formerly gave employment to 200 men.

"In the heyday of East Texas refining, a great number of plants operated on excellent oil, and it was only natural and right that they pass from the picture when proration laws were established; but that is not the reason for almost complete extermination of the legitimate independent refining industry.

"Day by day, and month after month the major companies who would profit most without independent competition, have centered their battle on East Texas. They have employed every known method to eliminate competition. Their association, the Texas Petroleum Council, has been the spearhead of their East Texas drive. Major companies have used every illegal device from subsidy to outright collusion with the officials to destroy Independent Refineries. Crude prices have been rigged, pipe line practices have been manipulated, and even regulatory agencies have been used in the persecution of East Texas refineries."

The operators of one big refinery in Longview in a public statement printed in the Shreveport Daily Times⁴⁹ making the announcement of the close of their refinery said:

"The rigging of low crude oil prices by the Major oil companies and high allowables in many Texas pools, and in other states, is directly responsible for the situation in which we now find ourselves.

"This company has invested more than \$1,000,000 in its modern refinery and crude oil gathering system in East Texas, and we now find this entire investment rendered worthless to its owners, its employees, and the community, due to the unfair, and what we believe to be unlawful, rigging of crude oil prices throughout the State of Texas and in other oil producing states.

"Standard trade statistics of New York City forecast, as early as last June, that a squeeze would be put on the Independent refiners throughout the country. Evidently, this statistical bureau must have had access to the facts, as the squeeze has been on for the past three months and the Independent refining industry throughout the mid-continent oil field is rapidly being destroyed.

"For the past three months we have continued to operate our refinery at a tremendous loss in the hope that conditions might change for the better but each day we have found the squeeze drawn a little tighter and our losses increased accordingly until we have been forced to close.

"With one single exception, the integrated Major oil companies have been united in their refusal to purchase crude oil from our gathering system but at the same time have been willing to take over our pipe line connections in the field, if we were ready to retire from business. Thus, we find it necessary to acquire steel storage and store large quantities of East Texas crude in order to protect our pipe line connections.

"The use of certain state agencies by application of the market demand statute, by the integrated oil companies in maintaining high allowables and low prices in many oil pools in the state of Texas will result in the complete monopolization of the oil industry in this state.

"The same powerful, organized financial group which has been so successful in destroying the Independent refiner is also bearing down heavily upon the Independent oil producer and it is only a matter of time until the Independent producer will find himself in the same indefensible, unenviable position now occupied by the Independent refiner."

The question of price rigging is simply explained by Mr. Chas. S. Roeser, President of the Independent Petroleum Association of America.⁵⁰

⁴⁹ Shreveport Daily Times, Sunday, February 13, 1938.

⁵⁰ R.R. Com. Oil Hearings of Dec. 12, 1938.

Mr. ROESER: "My personal opinion is that starting in July, 1937, the sellers, and makers of gasoline have possibly been selling their product at subnormal prices, on both tank car and tank wagon gasoline, thereby creating distress in the independent refineries position for the simple reason they could not pay that price and continue in business."

Chairman THOMPSON: "You mean that gasoline was too cheap and crude oil too high?"

Mr. ROESER: "Gasoline has been selling too cheap for the past 16 months."

Chairman THOMPSON: "Would that be a fine way, if a fellow was trying to put a little man out of business, wouldn't it be a good method to do it?"

Mr. ROESER: "I have heard that referred to as the squeeze."

Chairman THOMPSON: "Do you think that has been going on?"

Mr. ROESER: "In judging over the refinery shut down in the midcontinent field, I would think that the squeeze is working."

Chairman THOMPSON: "Do you think that is a healthy situation for the country?"

Mr. ROESER: "I think it is extremely unhealthy."

Chairman THOMPSON: "What means would you recommend that the Commission take to bring that condition to a stop?"

Mr. ROESER: "The Commission of Texas, in conjunction with the regulatory bodies in other states could be very helpful in this situation if they could bring about the cessation of any withdrawals of crude oil from storage for the next six months."⁶¹

In discussing the effect of price rigging upon East Texas Independent Refineries it must be remembered that these local industries had only one source for their supply of crude oil, the East Texas oil field. The Major Integrated companies not only own a great portion of their own requirements of their crude oil in East Texas field but in addition own vast reserves in other sections of the state, and other states, and the Integrated Companies are practically the only buyers of any other oil in any other section of the State because most of the Independent Refineries in other Sections of Texas have already gone. The posted price of crude oil does not effect the Major Integrated Companies because what they lose in one place they were easily able to recover in another.

The price of crude oil in the East Texas field in October, 1938, was \$1.35 a barrel. This price was not too high but it was much higher than the price paid by the Integrated Companies for oil anywhere else in Texas. The average price of crude oil in Texas in 1938 was \$1.07 a barrel.⁶² The price that the East Texas refiners had to pay was \$1.35 a barrel. And they had to sell their gasoline at least as low a price as their Major competitors.

The East Texas Petroleum Association issued a statement on March 7, 1938, in which it was said:⁶³

"Independent refiners are faced with the necessity of closing their plants, due to the unfair rigging of crude and refined prices throughout the country by the Major companies, which makes it impossible for the Independent refiner to ship his gasoline in Inter-State Commerce, except at a tremendous loss.

"The present posted price of East Texas crude is not too high. The posted price of oil in many other fields which compete with East Texas in the world market is entirely too low and should immediately be corrected. Low priced crude and high allowables in many fields, resulting in the manufacture of cheap gasoline, is a constant threat to the price structure in East Texas.

"The low posted price of crude in the Van field, in West Texas, New Mexico and in many other pools, is directly traceable to the lack of Independent competition in the purchase of those oils. The availability of these low priced crudes to the Major purchaser is slowly but surely destroying the market demand for our own crude here in East Texas."

There is direct proof of price rigging against the Independent Refiners in East Texas.

Take the nearby oil fields with oil comparable to East Texas oil as to quality. These fields are all controlled by the major integrated companies. The allowable production is higher by far in everyone of these fields than in East Texas and the price per barrel for crude oil has been fixed by the majors themselves and at a rate below the rate in East Texas.

For instance, there is an 11-cent differential against East Texas in favor of the crude oil from the Van field. East Texas crude oil today is \$1.10; Van, 93 cents.

⁶¹ RR Com. Hearings of Texas, P. 11 & 12.

⁶² Bureau of Mines.

⁶³ Texas Newspapers, March 7, 1938.

Van oil is 100% controlled by the majors. The East Texas oil is 37 deg. gravity. Van is 34 to 34.9 degrees. Oil of both fields comes from Woodbine sand. Almost identical in character, except that Van is a little lower gravity. There is a difference of 17 cents in price. Even reduced to common gravity, allowing two cents for each degree, there is a differential of 11 cents against East Texas in favor of Van.

With respect to the Van field only forty miles from the East Texas field, note the following from oil hearings held in October 1938 by the Texas Railroad Commission:

Mr. C. R. STARNES, East Texas independent refiner and producer: "Van crude, the identical crude of East Texas, is posted at 93 cents and East Texas at \$1.10 and nobody will buy East Texas crude when Van is at 93 cents and when anybody has a monopoly like exists at Van he has an advantage."

Chairman THOMPSON: "Is there any Van crude available?"

STARNES: "No Sir, because it is monopolized."

THOMPSON: "You mean held by one outfit?"

STARNES: "Yes; under contract."

THOMPSON: "They won't sell to the independent?"

STARNES: "No, sir."

THOMPSON: "They post their price lower than the competitive crude and whip the little fellow to death?"

STARNES: "Yes, Sir."⁶⁴

This situation is true throughout the mid-continent field. Other oils are lower in every case than East Texas. The difference in price runs from 4 cents a barrel to 55 cents a barrel. Reduced to common gravity the difference in price runs from 4 cents a barrel to 39 cents against East Texas crude.

Two tables are presented here. The first shows fields nearby East Texas with oil comparable to East Texas crude. The price of this crude and the price reduced to a common gravity are shown. This table shows a differential against the East Texas field based on gravity of competitive oil which runs from 4 cents a barrel to 39 cents a barrel.

The second table is entitled "Crude Prices by Gravities" and covers the entire mid-continent field.

It will be noted that with each degree of gravity up to 30 degrees Baume, 3 cents is added to the price per barrel. After 30 degrees there is a difference of 2 cents per each degree.

Bearing in mind that East Texas oil of 37 gravity sells for \$1.10, it can easily be seen that there is a crushing differential against the East Texas Refiner. This differential averages more than 6 cents per barrel. The East Texas Independent Refiner must pay for his supply of crude that average of 6 cents per barrel more than his major competitor can get the same oil for. This 6 cents differential of course, takes every dollar of the profit out of refining for the East Texas Independent.

When it is considered that the Independent Refiner has to dump on the open market all gasoline for which he has not previously contracted, and the Major refiners are constantly expanding and constantly putting through increased amounts of crude oil and then reducing their wholesale price for the announced purpose of "meeting Independent Refiner's competition." Then it can be readily seen that the Independent Refiner with the added burden of price differential on his crude can not survive. The Major is not particularly affected because what it loses in one branch of the industry it makes up in another. The consumer is never benefitted except temporarily and then only in localities where the Independent competition is strong.

⁶⁴ RR Comm. Hearings, October 1938, p. 26.

Field	Gravity Deg. Baume	Price	Price, reduced to common Gravity (\$)	Differential against E. Texas Field (¢)
East Texas.....	37-37.9	1.10	1.10	-----
Oklahoma.....	37-37.9	1.04		6
Okla.-Kansas.....	37-37.9	1.04		13
North & Central Texas.....	37-37.9	.97		11
Louisiana-Ark.....	37-37.9	.99		4
East-Central Texas.....	37-37.9	1.06		4
Rodessa.....	37-43	1.06	1.06	4
Talco.....	19-24	0.55	0.71	39
Supshur Bluff.....	24	0.78	1.04	6
Powell.....	36-38	1.06	1.06	4
Corsicana.....	35-37	1.04	1.06	4
Mexia.....	35-36	1.02	1.04	6
Cayuga.....	25-32	0.81	0.91	19
Long Lake.....	37-45	1.06	1.06	4
Van.....	34-34.9	0.93	0.99	11

Crude Prices by Gravities January, 1939

	Oklahoma	Oklahoma and Kansas	North and Central Texas	Louisiana and Arkansas	East Central Texas	Gray County, Texas	Hutchinson and Carson counties, Texas	Raccoon Bend, Satsuma and Tomball, Texas	West Texas and Lea County, N. M.	Fort Collins and Wellington, Colo.	Anahuac and Dickinson, Texas	Refugio, Texas	Mirando and Duval, Texas	Gulf Coast Texas	Cass and Panola counties, Texas	Beaumont and West Beaumont, Texas	Lockport, Iowa, Cameron Meadows, Louisiana	Artesia, Jackson and Mallam, N. M.	Iowa, Louisiana
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Below 18.....																			\$.75
18-18.9.....																			.77
19-19.9.....																			.79
20-20.9.....	\$.60	.70																	.81
21-21.9.....	.63	.72																	.83
22-22.9.....	.66	.74																	.85
23-23.9.....	.69	.76			.78														.88
24-24.9.....	.72	.78	.71		.80														.92
Below 25.....					.73										.73				
25-25.9.....	.75	.80	.73		.82			1.01	.65		.92	.97	.92	.97	.75	.97	.94		.95
26-26.9.....	.78	.82	.75	.77	.84			1.03	.67		.95	1.00	.95	1.00	.77	1.00	.97		.98
27-27.9.....	.81	.84	.77	.79	.86			1.05	.69		.97	1.02	.97	1.02	.79	1.02	.99		1.00
28-28.9.....	.84	.86	.79	.81	.88	.72	.67	1.07	.71	.81	.99	1.04	.99	1.04	.81	1.04	1.01	.61	1.02
29-29.9.....	.87	.88	.81	.83	.90	.74	.69	1.09	.73	.83	1.01	1.06	1.01	1.06	.83	1.06	1.03	.63	1.04
Below 30.....																			
30-30.9.....	.90	.90	.83	.85	.92	.76	.71	1.11	.75	.85	1.03	1.08	1.03	1.08	.85	1.08	1.05	.65	1.06
31-31.9.....	.92	.92	.85	.87	.94	.78	.73	1.13	.77	.87	1.05	1.10	1.05	1.10	.87	1.10	1.07	.67	1.08
32-32.9.....	.94	.94	.87	.89	.96	.80	.75	1.15	.79	.89	1.07	1.12	1.07	1.12	.89	1.12	1.09	.69	1.10
33-33.9.....	.96	.96	.89	.91	.98	.82	.77	1.17	.81	.91	1.09	1.14	1.09	1.14	.91	1.14	1.11	.71	1.12
34-34.9.....	.98	.98	.91	.93	1.00	.84	.79	1.19	.83	.93	1.11	1.16	1.11	1.16	.93	1.16	1.13	.73	1.14
Below 35.....																			
35-35.9.....	1.00	1.00	.93	.95	1.02	.86	.81	1.21	.85	.95	1.13	1.18	1.13	1.18	.95	1.18		.75	
36-36.9.....	1.02	1.02	.95	.97	1.04	.88	.83	1.23	.87	.97	1.15	1.20	1.15	1.20	.97	1.20		.77	
37-37.9.....	1.04	1.04	.97	.99	1.06	.90	.85	1.25	.89	.99	1.17	1.22	1.17	1.22	.99	1.22		.79	
38-38.9.....	1.06	1.06	.99	1.01	1.08	.92	.87	1.27	.91	1.01	1.19	1.24	1.19	1.24	1.01	1.24		.81	
39-39.9.....	1.08	1.08	1.01	1.03	1.10	.94	.89	1.29	.93	1.03	1.21	1.26	1.21	1.26	1.03	1.26		.83	
40 and over.....	1.10	1.10	1.03	1.05	1.12	.96	.91	1.31	.95	1.05	1.23	1.28	1.23	1.28	1.05	1.28		.85	

MAJORS CARRY ON GASOLINE WAR AGAINST INDEPENDENTS IN EAST TEXAS

The little filling station operator, owning or renting his filling station and pumps has been rendering a real service to the people of Texas. He usually operates the station himself; sometimes with the assistance of members of his family. He is buying the gasoline from the few independent refiners that are left in Texas. He is selling a good grade of gasoline, of 60-62 Octane for ten and eleven cents a gallon, or twelve and thirteen cents for 72 Octane. These prices include one cent Federal tax and four cents State Tax in Texas. The major companies' prices have until recently ranged from 18 to 21 cents for similar quality gasoline, or nearly 100 per cent higher.

The comparative ease with which the large Integrated companies throttle Independent refiners is demonstrated as recently as January 28, 1939, when, in the East Texas area only, they slashed the wholesale price of gasoline. This was a blow directly aimed at sectional competition. Practically all of the few Independent refiners still operating in Texas are operating in East Texas.

The United Press for January 28th said:

"New prices of 12 cents a gallon for regular grades and 14 cents for premium grades were announced by Gulf, Sinclair, Continental, Texas, Cities Service, Magnolia and Humble Companies.

"The new wholesale prices were expected to result in lower retail prices over a large portion of the East Texas oil field to meet competition offered by Independent refiners."⁶⁵

The Associated Press said:

"The new prices are 12 cents for regular and 14 cents for premium grades of fuel and 17 and 19 cents at retail stations over a large section of East Texas where competition with Independent refiners is strong. Some Independents quoted prices of 9 and 19 cents for gasoline."⁶⁶

It is evident throughout Texas that the Independent refiner, as weak and insecure as his position is, is nevertheless establishing a yardstick for local gasoline prices that is saving Texas commerce millions of dollars annually. Of course, he is called a chiseler by the Majors, but this is extremely unfair. The truth is the Independent refiner can and does operate cheaper and consequently they can sell cheaper.

The cost of distribution of the Major is seven cents; that of the Independent much less. The consumer gets the benefit of the difference.

Right now thousands of families are being supported by the meager proceeds of little Independent filling stations. When the supply of Independent Refinery gasoline is shut off, the Texas Independent filling station operator who has come into existence in great numbers the past 4 or 5 years will go out of business as his predecessor did 15 years ago. People will again be attracted by the ornate filling stations of the Majors and their mis-leading advertisements of superior-quality gasoline, and these thousands of people now engaged as Independent filling station operators and their families, will have to search elsewhere for a livelihood. The old high and controlled prices will again prevail and the public will pay as usual the price of monopoly.

It is needless to call attention to the simple fact, within the knowledge of everyone that cheaper gasoline enables more people to own and drive automobiles. The ending of cheap but nevertheless fair prices for gasoline will retard the sale of automobiles, and throw other people engaged in the sale and repair of automobiles out of work.

TWO UNFAIR PRACTICES OF MAJOR REFINERS

It is not the purpose here to discuss in any detail unfair competition in marketing, but two instances stand out so clearly that they might well be mentioned here.

One is the purchase on the open market of gasoline by the major companies and the branding of that gasoline as the product of that company. Every major integrated company has its own particular brand for which they claim extraordinary qualities, and, as a matter of fact, millions of gallons of gasoline that never passed through the plant of that company are purchased wholesale and resold as that company's product. Great and unfair advantage is given over the independent by reason of nation-wide high powered advertising.

The matter was fairly well summed up by Honorable Thurman Arnold in a radio broadcast when he said:

"What has happened in this country is that a number of groups have gotten into control of what I have called economic toll bridges which enable them to impose charges on others who have to pass over them to buy or sell their goods.

"The very existence of the independent oil companies of America is threatened because the major oil companies stand between them and access to the market. This has happened in a way which is partly legal under our present laws and partly illegal.

"The major oil companies, by an aggressive sales policy, have acquired so many filling stations that it is very difficult for an independent to obtain a foothold.

⁶⁵ Longview, Jan. 28, 1939, United Press.

⁶⁶ Longview, Jan. 28, 1939, Associated Press.

"Then, by nationwide advertising they have created a situation where the public will not buy gasoline made by independents unless it is sold under the trade name of a larger company."⁶⁷

Six companies, the Continental Oil Company, Barnsdall Corporation, Mid-Continent Petroleum Corporation, Skelley Oil Company, Pure Oil Company, and Phillips Petroleum Company, have joined in and built a pipe line and incorporated it under the name of Great Lakes Pipe Line Company.⁶⁸ They own and use this pipe line jointly. It transports millions of gallons of gasoline that is refined by each of the different companies. This gasoline is all inter-mingled together, yet when delivered at the other end of the line it is sold under one of the six brands, with extravagant claims being made for its superiority over all other gasolines. For this, of course, there is not the slightest basis.

Then there is Ethyl gasoline. The Consumers Division of the National Recovery Administration conducted an extensive investigation and issued a report on gasoline and, referring to the treatment of gasoline with tetraethyl lead, said:

"The consumer is informed that nothing is too good for his car and that if he wishes to treat it well, he should give it the highest octane gasoline. The effect of his action is simply to waste his money. * * *

"Of outstanding importance in the market is the trade name. This is capitalized by the major companies whose trade brands are familiar throughout the country. Though crude petroleum varies greatly from field to field, gasoline itself, when it comes from the refinery, is fairly uniform in quality. However, in the attempt to save transportation costs there is a rather general swapping of gasolines by the major companies behind the scenes, and the trade name under which gasoline is marketed gives an apparent uniformity to a very real chaos of source. * * *

Then there is the Ethyl Gasoline plan of selling:

"Users of Ethyl are licensed by the Ethyl gasoline Corporation (The stock of the Ethyl Gasoline Corp. is divided between the General Motors Corp. and Standard Oil of New Jersey.)

"They can secure this license only on the proviso that the differential be maintained. Refiners and jobbers who purchase Ethyl Gasoline for resale are compelled to submit lists of their customers, and cut-rates are banished summarily from their books or the license is revoked.

"Independents have found it virtually impossible to secure tetraethyl lead, and this inability is one of their greatest sources of complaint. * * *

This report further recites that automobile engines were made to run on a medium or low-octane gasoline and not the premium grade treated with tetraethyl lead. But the effect upon the mind of the purchaser of gasoline by extravagant and flamboyant advertising of the Major Companies of their tetraethyl lead or anti-knock product is not to be denied. The Independent who has been unable or refuses to pay high royalty for the use of ethyl constantly feels the effect of this unfair advertising.

These are two illustrations of many unfair practices of the Majors against the Independents. Perhaps the governmental agencies charged with the enforcement of fair trade practices will sometime give this matter their attention.⁶⁹

PIPELINES AS COMMON CARRIERS

The question whether pipelines should be common carriers is not new. The first pipeline built was by the Tidewater Oil Association, an independent concern operating in Pennsylvania. The story of the building of that pipeline has been told and retold until it is now new. It was built by that independent concern because the Standard Oil Trust had entered into agreements with railroads to give them preferential treatment and rebates and it was using these agreements for the purpose of destroying its competitors. The Standard Oil Trust followed the same procedure in acquiring pipelines as it did refineries. It bought what it could and made war upon the remainder. It acquired the control of the Tide Water and other pipelines and continued to remain the master of transportation and thereby continued to hold in its hands the weapons necessary to price-fixing.

Congress ordered an investigation of railroad discriminations and monopoly in oil⁷⁰ and under that authority the Commission made its investigation and report to Congress.⁷¹ The Commissioner of Corporations, the predecessor of the Federal Trade Commission, also prescribed a general investigation into the pro-

⁶⁷ Thurman Arnold broadcast of Aug. 19, 1938.

⁶⁸ Rep. on Pipe Lines, 72nd Congress, Part I, pp. 75-77.

⁶⁹ NRA Report—1933, "What Is Gasoline."

⁷⁰ Public Resolution #8, approved March 7, 1906.

⁷¹ Interstate Commerce Commission Report, January 28, 1907.

duction, distribution, and sale of the products of petroleum and these investigations lead to the enactment of the Hepburn Act.⁷²

The Commerce Act was amended by the Hepburn Act in 1906, so as to make the provisions of the Act apply to "Any corporation or any person or persons engaged in the transportation of oil or other commodity, except water and except artificial gas by means of pipe lines."

In "In the Matter of Pipe Lines" ⁷³ certain pipe line companies contended that they were not common carriers because they were built over privately acquired rights of way and transported only their own oil; most of these companies required all producers to sell them the oil prior to transportation. The Interstate Commerce Commission considered the effect of the Hepburn Act and construed the law as placing under its jurisdiction all pipe line companies carrying oil in interstate commerce, whether or not they had previously held themselves out to be common carriers. In certain instances separate corporations had been created in each State through which the oil was transported, but the Commission found that the transportation was in substance interstate. In other instance the Commission found that the transfer of a portion of the property of a common carrier pipe line to a private corporation without change in the actual activities of the pipe lines did not release such property from the obligations of a common carrier. The Commission ordered all of the respondent interstate pipe line companies to file tariffs and schedules in accordance with Section 6 of the Interstate Commerce Act.

This act was construed by the Interstate Commerce Commission in the "Matter of Pipe Lines" wherein certain pipe line companies contended that they were not common carriers because they transported their own oil. The Interstate Commerce Commission ⁷⁴ construed the Hepburn Act as placing under its jurisdiction all pipe line companies carrying Interstate Commerce whether or not they had previously held themselves out to be common carriers. The Commission ordered all of the respondent interstate pipe line companies to comply with the Act.

The Act of the Commission was reviewed by the Supreme Court of the United States in what is known as the Pipe Line Cases.⁷⁵ The Supreme Court approved the decision of the Interstate Commerce Commission as applying to all pipe lines engaged in interstate transportation of oil. The court held that the pipe line companies were common carriers even though they had purchased the oil prior to its going into the pipe lines.

Mr. Justice Holmes delivered the opinion of the Court and his statements made 25 years ago are so applicable to present day conditions that they are worth quoting:⁷⁶

"By the before-mentioned and subordinate lines the Standard Oil Company had made itself master of the only practicable oil transportation between the oil fields east of California and the Atlantic ocean, and carried much the greater part of the oil between those points. Before the recent dissolution, the New York and Pennsylvania companies had extended their lines into New Jersey and Maryland to the refineries, and the laws of those states did not require them to be common carriers. To meet the present amendment the Standard Oil Company took a conveyance of the New Jersey and Maryland lines, and the common carrier lines now end at insignificant places where there are neither market nor appliances except those of the Standard Oil, by which it would seem that the whole transport of the carriers' lines is received. There is what seems to be merely a formal breach of continuity when the carriers' pipes stop. The change is not material to our view of the case.

"Availing itself of its monopoly of the means of transportation the Standard Oil Company refused through its subordinates, to carry any oil unless the same was sold to it or them, and through them to it, on terms more or less dictated by itself. In this way it made itself master of the fields without the necessity of owning them, and carried across half the continent a great subject of international commerce coming from many owners, but, by the duress of which the Standard Oil Company was master, carrying it all as its own."

"It not only would be a sacrifice of fact to form, but would empty the act if the carriage to the seaboard of nearly all the oil east of California were held not to be transportation within its meaning, because by the exercise of their power the carriers imposed as a condition to the carriage a sale to themselves."

⁷² Act, Jan. 29, 1906, Chap. 3591, p. 34; Stat. at L. 584.

⁷³ 24 I. C. C. 1 (1912).

⁷⁴ Report on Pipe Lines H. R. #2192—1933:

⁷⁵ 24 I. C. C. 1.

⁷⁶ United States v. Ohio Oil Co., 234 U. S., 58 L. ed.

The Transportation Act of 1920⁷⁷ amended the Hepburn Act so as to give a very simple definition to the term "common carrier." Congress defined the term as follows:

"The term 'Common Carrier' as used in this chapter shall include all pipe line companies."⁷⁸

Therefore over a period of 14 years from the date of the Hepburn Act in 1906 to the Transportation Act of 1920, there has been constant resistance on the part of the Major Integrated Oil Companies to having their pipe lines made common carriers by law.

The non-integrated company pipe lines are used by the general public and oil shippers and are truly common carriers. The pipe lines of the integrated companies, though made common carriers by law, are so operated as to be of little use to the general public. They are all used by their brother companies by special agreement and as a matter of courtesy between friendly great interests.

The integrated company pipe lines are not generally used by the producer-shipper, as a carrier, because of innumerable restrictions, such as large "tender requirements" as to shipments, high rates, burdensome requirements as to delivery into the pipe lines, pleas of over-crowding of the line, and others.

AMAZING PROFITS OF PIPE LINES

There are two kinds of pipe lines; one is the truly common carrier, and the other is the pipe line of the major integrated company.

There is no difference of opinion that a common carrier, whether it be a railroad, pipe line, or steamship, should be paid reasonable compensation for the services performed, nor that its rates should be so fixed as not to be confiscatory. The people do not object to a public utility, or common carrier receiving a reasonable return upon the investment. Where the rates of return are limited to a reasonable investment, the public interest does not suffer, but where a charge is made far in excess of a reasonable return upon the investment, the public interest does suffer.

The public interest suffers in that the producer receives too low a price for his product because of excessive costs of getting it to the market, or the public suffers in having to pay an extortionate price for the product because of unreasonable rates of transportation. In the case of excessive pipe line rates, or profits on the investment, the producer and consumers suffer for the reason just stated and for the further reason that the pipe line systems being owned by the integrated companies, they are able to stifle or control the competition of such independents. The Interstate Commerce Commission in its report on "Monopolies in Oil" as long ago as January 28, 1907, said:

"In any industry whoever controls the avenues of transportation of either the raw material or the finished product can speedily drive all competitors out of existence."⁷⁹

There have been made by the Interstate Commerce Commission exhaustive studies of the pipe lines of this country. Their studies are embraced in reports issued annually and the results of this investigation are nothing short of astonishing. These investigations show that over a period since 1929, the pipe lines owned by the general public, and not comprising portions of the systems of the major integrated companies, have earned a modest though profitable and steady return on the investment; but those that are parts of the integrated major companies have earned dividends unheard of in any other industry.⁸⁰

The reports for the years 1929 to 1937 inclusive show that six representative common-carrier pipe line companies earned during that nine-year period an average of 9.3 per cent.

These companies were:

- Eureka Pipe Line Company
- National Transit
- New York Transit
- Northern Pipe Line Company
- Southern Pipe Line Company
- Southwest Penn. Pipe Line Company

They had a capital in 1936 of \$13,312,000. Over that period they earned a toga. of 83.9 per cent of their capital, or \$11,173,000.

⁷⁷ Rep. on Pipe Lines, H. R. #2192-1933-app. M. P. 499.

⁷⁸ Sec. 1, par. 3, Transportation Act, 1920.

⁷⁹ ICC Report to Congress, Jan. 28, 1907.

⁸⁰ ICC Report, File No. 86-A-3.

The earnings of the purely common carrier non-integrated companies were substantial, regularly paid, and their stock, held by the general public, is unquestionably a good investment.

But the operations of the integrated pipe line companies have proved to be regular bonanzas for their owners, the major companies.

A representative list of sixteen major integrated company pipe lines taken for the same period show that the average annual earnings on the capital stock has been 45.8 per cent. The earnings over the last seven years average period have amounted to 320.7 per cent.

The total capital stock of the sixteen integrated companies is \$268,895,578.00. The total dividends paid during this period are \$861,078,000.⁸¹

The pipe line companies that are 100 per cent owned by the integrated oil companies are as follows:

⁸¹ ICC File No. 86-A-3.

Dividends Paid by Six Pipeline Companies Owned by Private Investors

Name of company	Capital stock 1936	Total dividends paid 1929-37	% 1929	% 1930	% 1931	% 1932	% 1933	% 1934	% 1935	% 1936	% 1937
Eureka P. L. Co.	\$2,500,000	\$3,600,000	1300	4	4	4	4	4	7	8	8
National Transit	6,362,000	4,275,600	12	8	8	7.2	6	6	6	6	8
N. Y. Transit	500,000	625,000	9	17	10	2.4	3	3	3	3.5	10
Northern P. L. Co.	1,200,000	838,000	8	8	7	3.5	5	5	5	5	6.5
Southern P. L. Co.	1,000,000	660,000	8	20	20	11.5	2	2.5	3	2.5	4.5
So. West. Penn. P. L. Co.	1,750,000	1,175,000	8	8	8	8	8	10	10	26	4

¹ Stock Dividend.

² Capital Reduced to 500,000 Rate % continued as of 1,000,000,000.

³ Capital reduced to 1,200,000.

6 non-integrated publicly owned pipe lines earned an average annual Divi-

15 pipe lines 100% owned by integrated Oil Companies earned an average an-

ual dividend of.....

Total capital stock—6 non-integrated companies—1936..... \$13,312,000

Total dividends—6 non-integrated companies—1929-1937..... 11,173,000

Total capital stock—15 integrated companies—1929-1937..... 269,263,578

Total dividends—15 integrated companies—1929-1937..... 864,085,000

Average annual earnings—6 non-integrated companies—9 year period..... 9.3%

Average annual earnings—15 integrated companies—7 year period..... 43.8%

It is notable that, of the 21 companies analyzed, the Rockefeller interests control no less than 14. (Authority; Pipe Line Report, 72nd Congress, House Report 2192.)

All data from I. C. C. File No. 86-A-3. Prepared for Hon. Karl A. Crowley, Fort Worth, Texas.

9.3%

45.8%

83.9%

330.9%

Dividends in Thousands of Dollars Per Annum

	Name of company	Investment 1937	Total divi- dends paid during period	No. years	1929	1930	1931	1932	1933	1934	1935	1936	1937
S. O. N. J.	Humble P. L. Co.	\$83,224,002	\$133,250,000	9	25,000	20,000	12,500	23,500	16,000	7,500	9,150	8,100	11,500
S. O. N. Y.	Magnolia P. L. Co.	58,241,516	57,252,000	9	13,200	11,040	9,240	9,600	7,200	7,255	7,005	6,022	6,000
Royal Dutch.	Shell P. L. Co.	56,553,626	197,650,000	9	7,200	3,600	27,200	23,200	10,700	10,550	6,000	8,100	6,600
S. O. N. J.	Okla. P. L. Co.	16,300,586	27,012,000	9	6,900	4,500	3,000	4,575	2,100	1,800	1,500	1,012	1,125
6 Cos.	Great Lakes P. L. Co.	23,529,127	25,637,000	6	---	---	---	2,265	3,717	3,655	7,000	4,558	5,032
Phillips Pet.	Phillips P. L. Co.	12,331,446	11,650,000	4	---	---	---	---	---	4,175	1,800	2,100	2,775

Pipe Line Profits, 1929-1937

Year	No. of companies reporting	Capitaliza- tion	Net earn- ings	% profit	Accrued de- preciation	Year	No. of companies reporting	Capitaliza- tion	Net earn- ings	% profit	Accrued de- preciation
1929	37	\$285,143,081	\$142,216,242	37	\$300,364,123	1935	53	297,420,937	78,249,400	26	396,286,252
1930	40	415,252,331	123,741,282	29	329,110,719	1936	52	263,850,032	66,416,810	25	401,283,875
1931	51	418,606,881	126,738,172	28	335,115,101	1937	58	290,968,866	102,796,361	35	413,915,921
1932	49	315,866,669	112,362,172	35	335,864,213	Nine year average					
1933	49	320,663,212	105,942,558	30	362,707,185						
1934	53	295,017,906	84,143,318	28	376,697,554						

All data from I. C. C. reports.

TABLE III

Name of company	Gathering lines	Trunk lines	Name of company	Gathering lines	Trunk lines
Ajax.....		795	Eureka.....	4,172	259
Atlantic.....	431	966	National Transit.....	2,437	1,217
Empire.....		405	New York Transit.....	163	126
Great Lakes.....		1,518	Northern P. L. Co.....		627
Gulf.....	2,020	5,742	Southern P. L. Co.....		269
Humble.....	2,025	4,476	So. West Penn. P. L. Co.....	1,399	439
Illinois.....	2,642	2,135			
Magnolia.....	2,048	3,760	Total.....	8,171	2,937
Oklahoma.....	588	1,153		11,908 Miles	
Phillips.....		733			
Shell.....	710	3,651			
Sinclair.....	6,438	6,438			
Standard, La.....	375	1,334			
Stanolind.....	1,912	5,130			
Sun.....		118			
Texas.....	1,614	3,546			
Total.....	20,803	41,900			
	62,703 Miles				

Avg. Miles, Six Companies, Per Company.....	1,968
Avg. Miles, Sixteen Companies, Per Company.....	3,919
Total Miles Owned by Six Companies.....	11,908
Total Miles Owned by Sixteen Companies.....	62,703
Capitalization Per Mile, Six Companies.....	\$1,033
Capitalization Per Mile, Sixteen Companies.....	4,294

Compiled from I. C. C. Form No. 86-A-3.

Ajax P. L. Co.
 Atlantic P. L. Co.
 Empire P. L. Co.
 Great Lakes P. L. Co.
 Gulf P. L. Co.
 Gulf P. L. Co. (Okla.)
 Gulf P. L. Co. (Penn.)
 Humble P. L. Co.
 Illinois P. L. Co.

Magnolia P. L. Co.
 Oklahoma P. L. Co.
 Phillips P. L. Co.
 Shell P. L. Corp.
 Sinclair P. L. Co.
 Standard P. L. Co. (La.)
 Stanolind P. L. Co.
 Texas P. L. Co. (Texas)

Of the twenty-two companies analyzed, the Rockefeller interests control no less than fourteen.⁸² Every integrated oil company discussed either operates in Texas or has affiliations with others that do.

All companies mentioned are controlled by United States citizens except the Shell Pipe Line Company. This is the off-shoot of the Shell Union Oil Corporation of which 64.35 per cent is owned by DeBataafsche Petroleum Maatschappij, care of Asiatic Petroleum Company, New York City, an European corporation, which was headed by Sir Henri Detterding, who died in Germany in February, 1939. It is notable that this corporation with a capital of \$6,649,978, paid dividends of \$100,050,000.00 from 1929 to 1937, operating in competition with corporations wholly owned by American Citizens. This is a total profit of 1,495 per cent over a nine-year period; an average profit of 166 per cent annually.

Two tables follow this statement. They were prepared from nine annual reports of the Interstate Commerce Commission. The first is a history of the earnings of 16 selected pipe line companies which are owned 100 per cent by integrated oil companies. This table shows that throughout the depression of 1931 to date, they have made enormous profits.

The second table which follows shows dividends paid by six selected pipe line companies that are truly common carriers and owned by the general public. This table shows the comparison between the nonintegrated and the integrated company operations.

ARE PIPE LINES MERE PLANT FACILITIES?

The major integrated companies contend that their pipe lines, reaching across many states and owned and used jointly among themselves are merely "plant facilities" and that their ownership by the integrated company is necessary to facilitate the handling of oil across the continent; that pipe lines are not used to

⁸² Pipe Line Report.

starve out competition and that the costs of transportation are lower by pipe line than by rail.

None of these arguments are sound.

Frequently at hearings and conventions of oil men mention will be made of the question of the necessity of the divorcement of pipe lines from the integrated companies. Everytime this happens there is thrown in the face of the speaker the statement of Dr. Splawn, Special Counsel for the Committee on Interstate and Foreign Commerce of the House.⁸³

Dr. Splawn said: "All pipe lines are found as a result of this investigation to be plant facilities in an integrated industry."

This leaves the impression that if a large integrated company has its own pipe line facilities, they are necessary to its own exclusive or preferred use for the transportation of its own oil from its own wells across eight or ten states to its own refineries and that such pipe line is a *necessary* plant facility. This is not true. In actual practice the result is very different indeed, and is so shown by the facts developed in the Pipe Line Report.

The lines of all the major integrated companies do carry oil for many others as shown by reports of the Interstate Commerce Commission and are not employed as necessary plant facilities.⁸⁴ Reports were made to the Commission for the years 1934-5-6, that showed the number of shippers over the trunk lines of each of the pipe line companies, including the integrated major companies. In 1936 the major integrated pipe line companies having more than one shipper using their lines are as follows:

Gulf Refining Company-----	2	Sinclair Ref. Co.-----	4
Oklahoma P. L. Co.-----	3	Standard P. L. Co.-----	2
Humble Pipe Line Co.-----	10	Standish P. L. Co.-----	9
Shell P. L. Corp.-----	2	Texas P. L. Co.-----	15
Sinclair P. L. Co.-----	6	Texas Empire P. L.-----	4

The Great Lakes Pipe Line Company was built by six companies to carry gasoline from Texas and Oklahoma to Chicago, Minneapolis, Des Moines and Omaha. These companies and their ownership are as follows:⁸⁵

	Percent		Percent
Continental Oil Co.-----	31.2	Skelley Oil Co.-----	13.0
Barnsdall Corporation ¹ -----	20.8	Pure Oil Co.-----	10.0
Mid-Continent Pet. Corp.-----	20.0	Phillips Petroleum Co.-----	5.0

¹ Barnsdall has disposed to others all but about 2.0% of its holdings.

This line has been used since 1931 for gasoline. It serves refineries in Oklahoma, Kansas, and Texas. The gasoline of each company is co-mingled with the other and yet when delivered at the other end of the line this gasoline is sold under the brands of the respective users of the line or under the brand of some other purchaser who may purchase that gasoline. Each advertiser of course, has his own brand and sells this particular gasoline on the market as being far superior to any other gasoline on the market though the particular gasoline so branded might not have been within one hundred miles of the refinery of the advertising company.

Dr. Splawn further said that "oil pipe lines are limited to one product; petroleum carried in one direction from a diminishing source of supply."

This is an erroneous conclusion so far as concerns the mid-continent fields, where most of the oil of the country is produced. Records of the Railroad Commission of Texas show that tens of millions of barrels of oil annually are exported to and from the states of Louisiana, Arkansas, Oklahoma and Texas.

Most of the oil of this country is produced in the mid-continent field in the states of Oklahoma, Arkansas, Kansas, Louisiana, New Mexico and Texas. Oil produced in each of these states moves to the other as the market requires. Of course, the oil is diminishing in the known fields just as the coal supply is gradually diminishing, but new fields are constantly being discovered to furnish an ever-increasing supply of oil to the refineries of the country wherever located. If it is unsound to ship oil by rail from the mid-continent field to Eastern refineries, then perhaps it may be considered unsound to ship oil by tankers from Gulf ports. It is not so considered, however, and tankers are very largely employed

⁸³ Report on Pipe Lines, Page LXVIII.

⁸⁴ I. C. C. Docket #26570—Reduced Pipe Line Rates.

⁸⁵ Pipe Line Report #2192, p. 75.

to provide cheap transportation by water. One fourth of the nation's refinery capacity has been built on the Gulf just to get the advantage of cheap water rates.⁸⁶

Dr. Splawn further says: "If the oil companies were forced to sell the pipe line companies, who would buy them and who would build to newly discovered fields?"

The report of the Interstate Commerce Commission⁸⁷ answers this question. This report shows that the non-integrated pipe line companies are owned by the public; that they are engaged as purely commercial common carriers just as the railroads are; that their earnings are steady and that the stock has proved to be a good investment for many years.

The earnings of six representatives non-integrated pipe line companies have averaged over 9 per cent profit annually for the last 10 years.⁸⁸ That part of the question answers itself; the public would buy the pipe lines and as a matter of fact, if the pipe line company stock owned by the parent company was distributed directly to the stockholders of the parent company there would be no need for the pipe line companies to sell their stock to anybody. Some of those receiving pipe line stock would hold it. Many would sell it and re-invest their money in other ways, but it is almost certain that a different ownership would soon develop. Unquestionably the earnings of the integrated pipe line companies now amounting to the average about 45 per cent annually would be reduced because the public would demand more reasonable rates for the transporting of oil and consequently, lower prices for gasoline.

As to the latter part of the question as to who would build pipe lines into newly discovered oil fields, one might ask the question "Who would provide a means of transportation into a section where vast industries, agriculture or mining had developed when the cost of providing such transportation would be small compared to the rich returns from the investment?" It is a well-recognized fact that now a pipe line built into a new field is so profitable that the cost is re-paid in a few months. The investing public would provide the way for transporting oil to the market. If pipe lines were the better and cheaper to use, they would be built; if other means of transportation were cheaper and better they would be employed. Where there is an opportunity for profitable investment of capital, it has always been and will be found.

The major integrated companies may hide behind such statements as those mentioned above and try to hoodwink Congress, the legislatures and the public, but those who operate them know that trans-continental pipe lines are not a necessary plant facility any more than a coal mine is a necessary railroad facility, or a butcher shop is a packing house facility; or an airplane factory is an air-transport line's facility. They are plainly means of transportation now being used by the monopoly for the additional purpose of stifling competition and controlling prices.

COMPARATIVE COSTS OF TRANSPORTATION BY PIPE LINES AND RAILROADS

The pipe lines from the Texas oil fields admittedly move vast quantities of oil from the mid-continent field of Texas, Louisiana, Arkansas, Oklahoma and Kansas to great refinery centers in St. Louis, the Great Lakes region and the Eastern Sea-board. The great bulk of the oil used by the country has long been transported from the mid-continent field to these refinery centers.

Commissioner Eastman, the Federal Co-ordinator of Transportation and one of America's great transportation experts, has been the possibility of savings to the public and added revenues to the distressed railroads by increased use of trains instead of pipe lines to carry oil. The Federal Co-ordinator, in making his report, used data assembled by the Interstate Commerce Commission, which gave full consideration to the matter of shipping train loads of oil. A tank car holds about 200 barrels of oil. A fifty-car train would carry 10,000 barrels. It is not necessary to consider in detail the vast amount of such traffic going from the mid-continent field over long distances to Eastern and other refineries. Suffice it to say that if railroads were used, the increase in the tonnage would be tremendous.

The Commission finds that the costs of handling oil by rail is less than two mills per net ton mile and by pipe line, 3% mills per net ton mile or nearly twice the cost by rail.⁸⁹

⁸⁶ "Refiner," January, 1939.

⁸⁷ I. C. C. File No. 860-A.

⁸⁸ I. C. C. 86-A-3.

⁸⁹ Tank Car Case—ICC #276882. ICC Docket 26570.

The whole question is answered by the report of the Federal Co-ordinator as follows:

"The data indicates that a full tonnage cargo train moving from a single origin track to a single destination track, without breaking the train line, would do so at a line cost of less than 2 mills per net ton mile, or below the average cost of pipe line transportation. This train also would eliminate much of the present terminal operations and expense. While the cost of this character of rail operation would continue to be higher than the cost of cargo water carriers, it would be lower than any form of land transportation. With respect to the traffic to which this type of transportation is adapted, the limitations of which are real, such cargo rail service offers great potential good for the commerce of our country, domestic and foreign as well as for the carriers which provide it."

Therefore it is clear that pipe lines are not used by the integrated companies solely as a means of saving money for themselves or for the public. The real reason is to control and prevent Independent competition.

It is shown that the capitalization of the purely common carrier pipe line companies is at the rate of \$1,033.00 for each mile of pipe line; for the 16 Integrated Companies discussed the capitalization is \$4,493.00 for each mile of pipe line.⁹⁰

There may be an explanation of some kind that the Major Integrated Companies can give for this discrepancy but to the general public it would appear that the Major Integrated Companies claim to have invested a far greater amount in pipe lines than they actually have. There may be a difference in the costs of building the pipe lines of the Major Integrated Companies of the Southwest and those simple common carriers in the North and East, but it is difficult to see why there should be. It would appear from such comparative costs that the earnings on the true investment in the Integrated systems are far in excess of the enormous profits which they actually admit.

THE STANDARD OIL TRUST THEN, AND THE OIL MONOPOLY NOW

The Standard Oil Company and the oil monopoly was the subject of investigation for many years prior to the decision of the Supreme Court dissolving the oil trust. In 1892, the Supreme Court of Ohio held that the making and operation of the Standard Oil Trust of 1882 was beyond the corporate powers of the Standard Oil of Ohio, intended to create a monopoly and enjoined that corporation from continuing its operation.⁹¹

The Interstate Commerce Commission was directed by Congress to make an investigation of monopolies in coal and oil, and to make a report thereon to Congress, in 1906.⁹²

In less than one year the Commission had completed its investigation and made a report to Congress.⁹³ This report was supplemental to a report of the Commissioner of Corporations, which has been succeeded by the Federal Trade Commission. This report might well have been written today because the facts, conditions and methods are identical with those today, the only difference being that the report in question dealt with the Standard Oil Company, and today the report and conclusions reached would refer to the joint or simultaneous actions of about 20 major integrated companies. This report sets out the monopoly of the Standard Oil Company and the following quotations are taken therefrom:

"In any industry whoever controls the transportation of either the raw material or the finished product can speedily drive all competitors out of existence. The production and distribution of petroleum is no exception to this rule. While there may be a feeble competition in limited areas, even that must rest largely upon the sufferance of the Standard Oil Company, so long as it has practically the exclusive use of its present system of pipe lines."

Today the production, transportation and marketing of petroleum in the mid-continent field and its products are controlled by the Integrated Majors through the control of pipe lines. The report also said:

"This record shows that the ruining of competitors has been a distinct part of the policy of the Standard Oil Company in the past, systematically and persistently pursued. One of the methods employed has been the organization of a perfect system of espionage over the shipments of competitors."

Today there are practically no pipe line competitors of the Integrated Majors. There is a full and complete record of the ruin of refining competitors; the independent marketer is almost a thing of the past and there is still a perfect system

⁹⁰ ICC 86-A-3.

⁹¹ *State of Ohio v. Std Oil Co.* 30 NE 279, 291.

⁹² Pub. Resol. #8, appvd. March 7, 1906.

⁹³ Rep. of ICC to Congress, Jan. 23, 1907.

of espionage through such agencies as the Texas Petroleum Council and other associations.

On methods of competition, the report said:

"The Standard Oil Company has repeatedly bought out its competitor and after becoming the owner of the competing company has continued to operate it under the old name, carrying the idea to the public that the company was still an independent operator and in actual competition with the Standard.

"It has used such independent companies as have become its own by purchase, and has sometimes organized independent companies, for the purpose of killing off competitors.

"It has habitually reduced the price against its competitor in a particular locality while maintaining its price at other places where the business was not profitable to the competitor. When the competition was destroyed, it restored the former price, and often advanced that price.

"It has sold different brands at different prices from the same barrel."

There is nothing new under the sun. These identical practices admittedly exist among the major integrated companies 32 years later.

Under "Conclusions" the Commission says:

"In respect of no other important traffic is there an approach to the monopoly of the Standard Oil Company in that of oil.

"It will probably be found necessary to disassociate in the case of oil, as in that of other commodities, the function of transportation from that of production and distribution."

Today independents are urging the same conclusions upon legislative bodies with the hope that they may find some relief from oppression.

Following the investigation by the corporation commissioner and the Interstate Commerce Commission, the Attorney General of the United States filed a suit against the Standard Oil Company of New Jersey and others to enjoin the defendants from continuing an illegal combination in restraint of commerce in violation of the Sherman Anti-Trust Act.⁹⁴

The Section violated reads:⁹⁵

"SECTION 1—Every contract, combination in the form of trust or otherwise, or conspiracy in restraint of trade or commerce among the several states, or with foreign nations, is hereby declared to be illegal."

"SECTION 2—Every person who shall monopolize, or attempt to monopolize, or combine or conspire with any other person or persons, to monopolize any part of trade or commerce among the several states, or with foreign nations, shall be deemed guilty of a misdemeanor."

"SECTION 3—The word 'person' or 'persons' wherever used in this act shall be deemed to include corporations and associations."

The Court recited the history of the activities of the Standard Oil Company of New Jersey, commonly called the Standard Oil Trust, from 1865, when John D. Rockefeller entered the refining business in Cleveland, Ohio.

The defendants were the Standard Oil Company of New Jersey, about 70 subsidiary corporations, and 7 individuals. The operations of the company and its subsidiaries were described, and they were exactly as the operation of the present day major integrated companies, engaged in the business of production, transportation, refining, and marketing of petroleum and its products.

The Circuit Court said:⁹⁶

"If the necessary issue of a contract, combination, or conspiracy is to stifle, or directly and substantially to restrict, free competition in commerce among the states or with foreign nations, it is a contract, combination, or conspiracy in restraint of that trade, and it violates this law."

"The purpose of this statute was to keep the rates of transportation and the prices of articles in interstate and international commerce open to free competition. Any contract or combination of two or more parties, whereby the control of such rates or prices is taken from separate competitors in that trade and vested in a person or an association of persons necessarily restricts competition and restrains that commerce."

"The purpose of the act of July 2, 1890, was to prevent the stifling and the substantial restriction of competition in interstate and international commerce. The test under that act of the legality of a combination or conspiracy is its direct

⁹⁴ *U. S. v. Std Oil Co. et al*, 173 Fed. 177.

⁹⁵ Act July 2, 1890, Ch. 647, 26 St. 209 (U. S. Comp. St. 1901, p. 3200).

⁹⁶ *U. S. v. Std. Oil Co. et al*, 173 Fed. 177.

and necessary effect upon such competition. If its necessary effect is but incidentally or indirectly to restrict competition, while its chief result is to foster the trade and increase the business of those who make and operate it, it is not violative of this law. * * * But if its necessary effect is to stifle, or directly and substantially to restrict, free competition in commerce among the states or with foreign nations, it is a combination or conspiracy in restraint of that trade, and it falls under the ban of the act."

"As illegal means whereby the unlawful monopoly was created and is maintained have been proved and found in the combination and conspiracy, and as their use to prolong the unlawful monopoly must be enjoined, the questions whether or not the charges in the bill that other unlawful means were or are employed are true, and whether or not the power of the court to prevent the existence or continuance of a monopoly is limited to the prohibition of the use of illegal means and their like have become moot, and it is unnecessary to express any opinion upon them."

The case was heard on appeal.⁹⁷ The opinion of the Court was delivered by Chief Justice White, who states the issues as follows:

"* * * On the one hand, with relentless pertinacity and minuteness of analysis, it is insisted that the facts establish that the assailed combination took its birth in a purpose to unlawfully acquire wealth by oppressing the public and destroying the just rights of others, and that its entire career exemplifies an inexorable carrying out of such wrongful intents since it is asserted, the pathway of the combination from the beginning to the time of the filing of the bill is marked with constant proofs of wrong inflicted upon the public and is strewn with the wrecks resulting from crushing out, without regard to law, the individual rights of others. Indeed, so conclusive, it is urged, is the proof on these subjects, that it is asserted that the existence of the principal corporate defendant, the Standard Oil Company of New Jersey—with the vast accumulations of property which it owns or controls, because of its infinite potency for harm and the dangerous example which its continued existence affords, is an open and enduring menace to all freedom of trade, and is a byword and reproach to modern economic methods. On the other hand, in a powerful analysis of the facts, it is insisted that they demonstrate that the origin and development of the vast business which the defendants control was but the result of lawful competitive methods guided by economic genius of the highest order, sustained by courage, by a keen insight into commercial situations, resulting in the acquisition of great wealth, but at the same time serving to stimulate and increase production, to widely extend the distribution of the products of petroleum at a cost largely below that which would have otherwise prevailed, thus proving to be at one and the same time a benefaction to the general public as well as of enormous advantage to individuals."

"Because the unification of power and control over petroleum and its products which was the inevitable result of the combining in the New Jersey corporation by the increase of its stock and the transfer to it of the stocks of so many other corporations, aggregating so vast a capital, gives rise, in and of itself, in the absence of countervailing circumstances, to say the least, to the *prima facie* presumption of intent and purpose to maintain the dominancy over the oil industry, not as a result of normal methods of industrial development, but by new means of combination which were resorted to in order that greater power might be added than would otherwise have arisen had normal methods been followed, the whole with the purpose of excluding others from the trade, and thus centralizing in the combination a perpetual control of the movements of petroleum and its products in the channels of interstate commerce."

"The *prima facie* presumption of intent, to restrain trade, to monopolize and to bring about monopolization, resulting from the act of expanding the stock of the New Jersey corporation and vesting it with such vast control of the oil industry, is made conclusive by considering (1) the conduct of the persons or corporations who were mainly instrumental in bringing about the extension of power in the New Jersey corporation before the consummation of that result and prior to the formation of the trust agreements of 1879 and 1882; (2) by considering the proof as to what was done under those agreements and the acts which immediately preceded the vesting of power in the New Jersey corporation, as well as by weighing the modes in which the power vested in that corporation has been exerted and the results which have risen from it."

"We think no disinterested mind can survey the period in question without being irresistibly driven to the conclusion that the very genius for commercial

⁹⁷ *Standard Oil Co. vs. U. S.*, 221 U. S. 30; 55 L. Ed. 619.

development and organization which it would seem was manifest from the beginning soon begot an intent and purpose to exclude others which was frequently manifested by acts and dealings wholly inconsistent with the theory that they were made with the single conception of advancing the development of business power by usual methods, but which, on the contrary, necessarily involved the intent to drive others from the field and to exclude them from their right to trade, and thus accomplish the mastery which was the end in view."

"As substantial power over the crude product was the inevitable result of the absolute control which existed over the refined product, the monopolization of the one carried with it the power to control the other; and if the inferences which this situation suggests were developed, which we deem it unnecessary to do, they might well serve to add additional cogency to the presumption of intent to monopolize which we have found arises from the unquestioned proof on other subject."

The Standard Oil Trust was then dissolved by decree of the Court and each subsidiary and the parent company pretended to become a separate and independent corporation.

In dissolving the Trust, Chief Justice White detailed the history of monopolies and their evil effects upon the common weal. He said "it is remarkable that no where at common law can there be found prohibition against a creation of monopoly by an individual. This would seem to manifest, either consciously or intuitively a profound conception as to the inevitable operation of economic forces and an equipoise or balance in favor of the protection of the rights of individuals which resulted."

"The frequent granting of monopolies and the struggle which led to a denial of the power to create them, that is to say, to the establishment that they were incompatible with the English Constitution, is known to all and need not be reviewed. The evils which led to the public outcry against monopolies (in England) and to the final denial of the power to make them may be thus summarily stated (by Parliament): (1) The power which the monopoly gave to the one who enjoyed it, to fix the price and thereby injure the public; (2) The power which it engendered of enabling a limitation on production; and (3) The danger of deterioration in quality of the monopolized article which it was deemed was the inevitable resultant of the monopolistic control over its production and sale."⁹⁸

The Standard Oil Trust was founded on a Trust agreement which gave control of many corporations and businesses to the principal company. This was a direct agreement and direct control by contract. Today in the oil business the integrated company has as its subsidiaries pipe line corporations, producing companies, refining companies, distributing corporations, and ownership of stock and control of other corporations which in turn have subsidiaries engaged in the different phases of the oil business.

This is not presented as an argument that the Sherman Anti-Trust Act is being violated by a conspiracy between all of the Integrated companies, however true it may be, but made for the purpose of showing that by tacit understanding for the adoption of identical policies all of the integrated companies have undoubtedly established a monopoly in which they and they alone participate and benefit.

In the absence of a written agreement it is almost impossible to prove a conspiracy between all of the integrated companies, but it is easily recognized that by the adoption of identical policies and plans of operation, they have established a monopoly contrary to the public welfare.

Some of the policies and practices between the major integrated companies are:

- (1) Their pipe lines are the only purchasers of crude oil;
- (2) Prices are fixed by posting a price by each company that it will pay for crude oil, and these prices as to each separate field are identical among all of the major companies;
- (3) There is no competition between the Majors as to crude prices in each separate field. Nor is there any open market for oil. The majors buy it for whatever price they wish and their price is almost uniform. The invariable practise is to post low prices for oil in fields that they principally control, and higher prices in fields from which independent refiners procure oil supplies from independent producers.

(4) They have identical prices for refined products and a price change by one is always followed by the others;

(5) They jointly engage in gasoline price cutting wars whenever independents in a given territory are to be driven out;

⁹⁸ *Std Oil Co. v. U. S.*, 221 U. S. 54; 55 L. Ed. 64*

(6) They build and operate pipe lines jointly but none are ever used as common carriers by the public or independents on account of high rates, high tender requirements and other disadvantages;

(7) They have exchange agreements whereby gasoline manufactured or owned by one in one locality is exchanged there for gasoline owned by a fellow major somewhere else, and when exchanged, this gasoline immediately assumes the characteristics of superior quality claimed for its gasoline by its new owner. The few independents surviving have no such arrangement.

(8) In the unitization development of fields, spacing of wells, and production methods, the voice of one major spokesman is the voice of all. They use the same propaganda agencies. The majors and protected independents use the same spy system and the majors have managed to get representation on every independent organization formed, so that they may have a hand in the development of policies of every oil organization or association.

(9) They finance their operations through the same or affiliated banking houses with ease, while the independent has to scramble for his money.

These are just some of the common policies of the major companies. They have been developed over a period of years, since the dissolution of the Standard Oil Trust. Once policies are adopted which inevitably lead to the accomplishment of the desired end, no written agreement is necessary. These policies lead to the strengthening of monopoly and the destruction of any newcomer or independent in the industry. The only difference between the old Standard Oil Trust and the present day majors is that in the former the agreements were evidenced by written documents but in the latter, they are oral and made out in the open in the nature of agreements as to the best "policies" for the industry to pursue. The result is the same.

WHAT REMEDIES WILL PREVENT MONOPOLY?

It being true that the oil business is completely dominated and controlled, from the time that leases are acquired until the consumer uses the gasoline, by the Major Integrated Companies, and it being true beyond any question of a doubt from a standpoint of operations these companies are to all intents and purposes one gigantic corporation, and assuming that the public policy of opposition to private monopoly will continue, then the inevitable question arises:

How can monopoly in the oil industry be prevented, with least harm to the present owners of the business and more adequate protection of the people of the United States?

There is submitted for careful consideration the proposition that there be a complete separation of the integrated oil companies without capital loss to them, so that those engaged in one branch of the industry may not engage in any other.

The oil business today has four separate branches. They may be classified as mining, transportation, manufacturing and merchandising.

No person can show that the public welfare requires that these branches be integrated any more than it can be shown that an integrated industry should control every phase of other essential industries such as the production of food stuffs and clothing. It is just as advisable to have the meat packing companies control the production of livestock, packing houses and retail sales on meat. This, of course, has already been determined to be illegal and prohibited.

The producer of oil as a rule knows nothing whatever about the operation of a pipe line, refinery or filling station. There is not the slightest connection between the production of oil and the other branches of the industry.

The pipe line operator is necessarily a traffic expert. It is his business to move a commodity from place to place through pipe lines and he never had anything to do with the production, manufacture, or distribution of that product.

The refiner is trained in the manufacture of products out of crude oil obtained through the process of distillation and his duties are wholly dissimilar to those engaged in other phases of the oil industry.

The retailer of oil and gas depends upon merchandising it in identically the same manner as any other merchant would by advertising and selling a good product. Where it comes from or how it is made is not of any concern to the retailer and he does not know or need to know anything whatsoever about other phases of the oil business.

The only result of allowing these major integrated companies to continue to operate as they do is to award to them special privileges not accorded to other citizens of the country. It allows them to control the supply and as it passes through their hands, to take whatever toll they desire from the buying public. In short, these are the names by which there has been established a monopoly

of essential industries whose profits continue to whatever amount the owners of this monopoly may desire. With careful planning and unwritten "understandings", the major companies can almost determined from year to year what profit they desire to make. Constant, steady and momentous earnings of these companies throughout the period of the world's greatest depression prove the truth of the statement that oil prices have not followed other commodity prices or the natural laws of supply and demand.

There need be no economic upheavals or destructive balancing or dislocation of industry in order that there be true competition in the oil business.

A sound application of laws to prevent acts committed that will result in restraint of trade is all that is necessary. Property rights need not be distributed in the least; only management of the various branches of the industry transferred to that natural and normal competition would follow.

If Congress would provide by law that no person, firm or corporation engaged in interstate commerce in either of the four branches of the industry should be permitted to engage in any other it would simply mean that the four branches would be separated, and that the producer would sell to the processor of the raw material these materials, using the recognized transportation facilities, and that the manufacturer would sell at competitive prices the finished product.

SEPARATION OF PRODUCTION FROM OTHER BRANCHES

It is admitted that practically every great oil field that has been discovered in the United States has been by the Independent wildcatter, and until a very short time ago the major companies were only casual producers of oil. The majors have, until about the days of the discovery of the Seminole field in 1926, been content that their operation of the toll bridge commence with the pipe line and refinery, but with the discovery of Seminole, Yates, Oklahoma City and East Texas fields they saw that the Independent refiner might find a place for himself in the picture, so they entered a gigantic buying program of lease and oil production and are continuing to build up their own reserves and at the same time throwing every possible restriction around the independent producer.

The independent can produce oil as cheap and cheaper than the major because he gives closer supervision and does not have such a great overhead.

It is advantageous to the country to have the Independent wildcatter continue his efforts as is demonstrated by the fact that he is willing to constantly search for new sources of supply.

The production of oil by the independent and its free sale leads to the establishment of new local industries.

The production of oil by the independent or non-controlled corporation would provide cheaper fuel for the public and unquestionably more jobs for our citizens.

It will be argued that the separating of the various branches would result in hardship for the producers to find a market for their oil. It is unquestionable that there would be a competitive market and that a posted price would not control. Oil would sell for what it is worth in each locality just exactly as corn and cotton now sells.

The argument would be made that there would be greater economic waste. The argument would be made that this would result in shutting down entire fields where oil has heretofore been purchased by majors. This cannot be true because it would result in refineries being built locally and there being shipped out by rail and truck the gasoline not needed in that locality. Pipe lines, of course, would furnish a reasonable amount of storage and terminal facilities just as other transportation agencies now do for other commodities, such as grains and cotton, and with much less expense or loss because those commodities are purely seasonal.

SEPARATION OF REFINING FROM OTHER BRANCHES

It is known how the business of refining oil is practically all in the hands of the major companies and that because of price rigging the independent has been destroyed as fast as he builds refineries. The disintegration of these industries would put all refineries on a parity and no undue advantage of transportation for supplies of raw material would be given. Those that are profitable to operate would continue to operate but those who are operating only because they have been given unfair advantages by reason of being parts of integrated companies might be expected to cease operations.

One result is certain. These manufacturing enterprises would be built close to the sources of raw materials. Manufacturing sections would develop a plentiful supply of the raw materials were available at reasonable and competitive prices. There would not be another spectacle of bankruptcy and junking of refineries as have been witnessed at Wichita Falls, Ranger and now in East Texas brought on by price rigging and choking off of supplies of crude oil.

Home industry would be promoted. Thousands of men would be employed in local industries. Local capital would be employed to build refineries. New factories would come to manufacture things needed by the people in the oil communities. The people in these communities would be able to enjoy the productions of their own sections at reasonable prices without having to pay tariff to the owners of industries who live far away in other cities.

Local refineries would be smaller but would be thriving industries supplying citizens of the community and exporting to other states and countries and would be yielding a profit to the local communities.

Instead of junk heaps and ghost cities that follow in the wake of exhaustion of oil fields, permanent cities and good towns would be built and continue to be supported by the oil resources of a particular locality where found.

In order to encourage development of small industry it would unquestionably be a wise policy to allow small refineries to produce, transport and process their own oil. This could be done by making the proposed law applicable to refineries having a capacity of 5,000 barrels of oil a day or less. The little man in the oil business might be thus encouraged to go out and find a supply of his own which, though small compared to the nation's requirements, might be adequate to supply the needs of a community or locality, but whatever the rule is there should be no opportunity offered with the evasions of the law so that major companies could ever again form a combination such as exists at the present time.

SEPARATION OF MARKETING FROM OTHER BRANCHES

Except as a part of a plan to promote monopoly there can be no earthly reason for a nationwide concern to engage in the business of selling oil products at retail. Ornate filling stations costing from \$10,000 to \$100,000 do not make gasoline any better. It is entirely proper that the Legislatures and Congress require standards of quality of gasoline to protect the public but there can not be any justification for the distribution of gasoline on a chain-store basis.

In the few places where there is some freedom of competition in the retail sale of gasoline there will be found thousands of families employed. They will operate little roadside filling stations, more often than not by the head of the family assisted sometimes by his wife and elder children. They more often than not have in connection with this little filling station, a lunch stand, cold drinks and a small store of automobile supplies. Thus with the separation of marketing from other branches of the industry would be found an opportunity for hundreds of thousands of American citizens of small means to engage in businesses of their own, at least having some means of making a living.

Then, too, any profits resulting from the sales of these commodities in a community would remain in the community instead of being shipped to the headquarters of the major companies in some far away state.

The monopoly in the retail distribution of gasoline and oil is certainly not necessary to the public interest and to separate that business from other phases of the industry can have nothing but a wholesome effect on local communities.

DIVORCEMENT OF PIPE LINES

The question of divorcement of pipe lines from other phases of the oil industry is not new. It has been long recognized that pipe lines have been used by the oil monopoly as toll bridges for the purpose of controlling industry. The Interstate Commerce Commission said in 1907:

"In any industry, whoever controls the advantages of transportation of either the raw material or the finished product, can speedily drive all competition out of existence. The production and distribution of petroleum is no exception to this rule. While there may be a limited competition in limited areas, even that must rest largely upon the sufferance of the Standard Oil Company, so long as it has practically the exclusive use of its present system of pipe lines."

The Commission recited in detail the operations of the Standard Oil Company which it defined as a monopoly. Its report showed in detail how the Standard

* I. C. C. Report, Jan. 28, 1907.

Oil Company, by controlling transportation facilities, was controlling the market, and the Commission said:

"It will probably be found necessary to dis-associate in the case of oil as in that of other commodities, the function of transportation from that of production and distribution."¹

From that time until the present there have been spasmodic though feeble attempts of independents and others familiar with conditions to separate transportation of oil from its other branches.

As an illustration, there was organized in 1933 an association known as the Independent Petroleum Association Opposed to Monopoly. This association made an investigation upon the subject and a report and recommendation to President Franklin D. Roosevelt. This report showing the intolerable conditions under which independent oil men had to operate so impressed the President that on April 4, 1933, he issued the following statement:

"The report of the Independent Petroleum Association Opposed to Monopoly recommends 'the enactment of emergency legislation by Congress divorcing oil pipe lines engaged in interstate commerce from other branches of the oil industry'. I am of the opinion that this is a reasonable request and that such legislation should be enacted at as early a date as possible."²

The Independent Petroleum Association of America while it has many persons as members who are affiliated with Major Integrated Companies, and its convention in Tulsa in September, 1938, gave special consideration to the question of divorcement of pipe lines by the appointment of a committee. This committee has been known as the Committee of Thirty-six. It is known to have drafted a report but that report has never been made public. But one member of the Committee, in charging that the major companies had failed to keep faith with the Railroad Commission in Texas and that their acts had resulted in harm to the independent, suggested remedies and one of them was:

"That we have a divorcement of production, pipe lines, refining, and selling into separate units with respect to which there is some difference of opinion within our committee, many of its strongest and best members insisting that divorcement be accomplished."³

There was introduced in Congress on March 8, 1939 by Chairman Lea of the Interstate and Foreign Commerce Committee of the House, H. R. #4862, 1st Session of the 76th Congress.

Except for the enactment of the Anti-trust laws and the Hepburn Act, the Congress of the United States has provided no remedies to correct the evils growing out of a monopoly in oil due to the absolute control of pipe lines by the major integrated companies. Throughout the 60 years of effort, there have been provided no effective remedies against monopoly. The power and influence of these gigantic companies can not be over-estimated because they are powerfully organized, their management and policies are all the same and they unite in a common effort in the employment of engineers, experts and propagandists. Their complete domination and sway over the oil industry has been threatened only a few times and then only by the discovery of independent wild catters of huge new supplies of oil that are in competition to the older fields, controlled entirely by the majors.

POWER TO CONTROL

The ground work is laid by the Hepburn Act and the sustaining of its validity by the Supreme Court. The power of Congress to regulate commerce between the states is now undisputed. It remains only for Congress to find the proper way.

DIVORCEMENT A SOUND WORKABLE PLAN TO RESTORE COMPETITION

In considering whether the transportation of oil by pipe lines should be dis-associated, by law, from other phases of the industry there might be properly considered:

- (1) The authority of Congress to enact such laws;
- (2) Whether it would result in economic dislocation of the industry that would be detrimental to the public welfare;
- (3) Economic dislocation of an industry that would result in loss to private investors.

¹ I. C. C. Report, Jan. 28, 1907.

² Stmt. of President Roosevelt, April 4, 1933.

³ Stmt. of R. H. Foster, Fort Worth Star-Telegram, Jan. 24, 1939.

On the first proposition, the authority of Congress can not any longer be questioned. Hundreds of decisions have been rendered by the Supreme Court upholding the authority of Congress to pass legislation regulating commerce between the states and territories, as provided for by the Constitution. The control of Congress over Commerce among the states in the regulation of the transportation of pipe lines directly based on the Pipe Line Cases⁴ where the Court held that "Congress may require those who are common carriers in substance to become so informed. So far as the statute contemplates future pipe lines and prescribes the conditions upon which they may be established there can be no doubt that it is valid."

If Congress should apply the Commodity Clause to oil and gas as provided for in H. R. #4862, 1st Session, 76th Congress, that clause undoubtedly would be held valid by the Supreme Court.

The Commodity Clause provides:⁵

"It shall be unlawful for any railroad Company to transport from any State, Territory, or the District of Columbia, to any other State, Territory, or the District of Columbia, or to any foreign country, any article or commodity, other than timber and the manufactured products thereof, manufactured, mined, or produced by it, or under its authority, or which it may own in whole or in part, or in which it may have any interest, direct or indirect, except such articles or commodities as may be necessary and intended for its use in the conduct of its business as a common carrier."

The validity of this provision has been repeatedly upheld.⁶ This law grew out of the investigation of the Interstate Commerce Commission and the Corporation Commissioner on Monopolies in Coal & Oil. The Act was applied only to coal.

There were many other decisions relating to the power of Congress to enact Anti-trust laws preventing monopolies, to apply police power, which might be cited. Notable among them is the Connally Hot Oil Act, which effectively restrains the transportation of oil in Interstate commerce, unless it be shown that such oil is not produced in excess of the amount allowed by the regulatory authority of the state from which the oil is produced.

The power of Congress to provide effective means of dis-associating the transportation of oil from other phases of industry can not be seriously questioned by any person:

On the second proposition, as to whether or not the proposed act of Congress would result in the economic dislocation of an industry that would adversely affect the public welfare, we have to consider only whether transportation facilities would be lacking, and whether rates would be reasonable.

The statement of this proposition almost answers itself. Pipe lines have always been built to new oil fields. When new fields have been discovered, far distant from pipe lines, loading racks have been built and oil carried by rail. This is true when pipe lines are congested with an over-supply of oil. This happened in the early days in Oklahoma. It happened again in Wichita Falls, Ranger, West Texas, and East Texas.

Where economical to operate, pipe lines are certain to be built to new oil fields; where railroad competition will provide a cheaper means of transportation than pipe lines, the railroads would be used. Reference is again made to the Eastman report showing that the cost of transportation by railroad is far less than pipe lines. There is no doubt whatsoever but that millions of additional tons of freight would be carried every year by the railroads if pipe lines were divorced from shipper ownership. An interesting study could be made by experts upon this question and undoubtedly would show that such action would put new life into our railroad systems.

So far as rates are concerned, they undoubtedly would be reasonable. There would be fierce competition between the pipelines and the railroad for the huge volume of traffic and the question that the Interstate Commerce Commission would have to consider would not be the restraining of the carriers from over-charging but instead preventing them from undercharging to such an extent one or the other system might suffer irreparable injury because of unfair competition. An expert would perhaps liken this competition between the railroads and pipe lines to the water competition now offered.

⁴ *U. S. v. Ohio Oil Co.*, 234 U. S. 518; 58 L. Ed. 1459.

⁵ Sec. 8, Transportation Act, 49 U. S. C. 13.

⁶ *U. S. v. Delaware, etc. R. Co.* (N. J. 1915) 238 U. S. 516, 35 S. Ct. 873, 59 E. Ed. 1438; also *Delaware, L. & W. R. Co. v. U. S.* (N. Y. 1913) 34 S. Ct. 65, 231 U. S. 363, 58 L. Ed. 269.

In any event, public interest could not suffer because where this essential commodity is produced a means always has been and will be found to transport it. Where there is real competition between carriers reasonable charges may be expected.

Upon the 3rd proposition, as to whether or not such separation would constitute such an economic dislocation as to cause loss of its private investors, we do not have to deal in opinions or theories. We have records of the purely non-integrated companies.

It was claimed in the Standard Oil cases and in fact in every other case where the government has sought to enforce anti-trust or anti-monopoly statutes, that the enforcement of the particular law involved would bring utter ruin and destruction to the industry involved. That was the main theme in the Standard Oil Trust Cases. It was true in the packinghouse cases and the same thing was urged in the Commodities Clause in the Railroad Cases.

In the packinghouse cases selling at retail by packing houses was forbidden and no catastrophe occurred. In the railroad cases the enforcement of the Commodity Clause separating the railroads from shipper ownership of the coal it transported did not wreck either the railroads or the coal mines. In these two instances, there was at least some semblance of competition restored in dealing with these two essential commodities, meat and coal.

When the Standard Oil Trust was dissolved in 1911 and the pipe line companies owned by it divorced from other phases of the industry,⁷ did that Act destroy values either of the pipe line companies or the parent company? Most emphatically not. On the other hand they each grew and prospered and have constantly been prosperous. Let's take the record and first begin with the statement made in the pipe line report.⁸ This report said:

"The ownership of crude oil pipe lines rests largely and that of gasoline pipe lines wholly with large or medium-sized integrated units of the oil industry. There is a further concentration of the larger part of the pipe lines in the hands of a relatively few of such integrated units. Only eight important pipe lines—the so-called northern and southern groups and the National Transit Co. have the usual earmarks of common carriers. Their unique status is, however, explained by the fact that they were separated from producing or other units of the oil industry by court action.⁹ They therefore are not exceptions to the well recognized rule that pipe line facilities have developed as adjuncts of the oil industry, designed to serve the individual interests of the members of that industry."

The Interstate Commerce Commission¹⁰ has constantly required reports of pipe line companies belonging to the major integrated companies, as well as those that were non-integrated. There is again referred to the earnings of representative companies reported upon by the Commission. The six pipe line companies owned by private investors have had earnings since 1929 through 1937 of an average of 9.3 per cent yearly. The 16 integrated companies have had as shown on the tables, an average profit of 45.8 per cent yearly. The Commission shows the investment of the non-integrated pipe line companies to be \$1,033 for each mile of pipe line and for the 16 integrated companies, \$4,493 for each mile of pipe line.

These figures show that notwithstanding the dire predictions made of destruction to follow in the wake of the dissolution of the Standard Oil Trust, everyone of its former integral units have made substantial profits and have been operated upon a purely business basis as a common carrier; that it is a claimed investment in the non-integrated carriers of only 25 per cent of the claimed investment of the integrated companies.

These common carrier lines are shown by the Commission to be operated upon the same basis as any other carrier of produce. They have no extraordinary requirements as to tenders, they furnish reasonable terminal and storage facilities, they transport oil on a fair basis, they are not engaged in the business of buying and selling crude oil for the purpose of supplying any particular refinery; their facilities are for the use of the general public oil producers and shippers and buyers; they are not used to corner the market, stifle competition, give unfair advantages to their owners and destroy competitors. They do not attempt to fix prices and instead of being owned by one stockholder, a parent company, they are owned by the general public.

⁷ *U. S. v. Std Oil Co.*, 173 Fed. Rep. p. 177.

⁸ Report on Pipe Lines, H. R. #2192, 72nd Congress.

⁹ *Standard Oil Co. vs. U. S.*, 221 U. S. 30; 55 L. Ed. 619.

¹⁰ ICC file No. 86-A-3.

The character of operations of the pipe line corporations owned by the major integrated companies are just exactly the opposite to those of the non-integrated companies owned by the public. The majors commit every harmful act that is forbidden or not engaged in by the non-integrated carriers.

It does not take an expert to see what advantages are offered to the public by separating every pipe line from other units of the industry. As for the harmful effect or loss of capital investment, even that would not occur if when separated the major units had the same kind of management and supervision that the non-integrated companies have.

The process of dissolution ought to be very simple; where the issuance of stock in the respective branches of the industry to the present stockholders in such proportions as might be decided upon by the Congress, the Courts, or the companies, but to make certain that any separation, effective, strong provisions should be written in any act providing against holding company ownership, interlocking officers or directors, or a common control or affiliation or ownership of one corporation by another, or by any other means whatsoever.

If pipe lines were divorced the majors would still have to purchase 48 per cent of the crude they refine because they only have 52 per cent of production. Further, on divorcement there would be competition for the purchase of crude and independent refiners *could then get a supply*. When independent refiners can get a supply at competitive (not fixed) prices there will be more independent refiners to purchase. Pipe line ownership by the majors prevents purchasing by independent refiners. There are no logical arguments why divorcement will not help the independent.

There can be no justification for the tolerance of monopoly and monopoly can be prevented by enforcing separation of the various units of the oil industry into separate identities, with justice to the owners and everlasting benefits to the American public.

CONTROL OF OIL BUSINESS: BY A PRIVATE MONOPOLY BY GOVERNMENTAL MONOPOLY, OR BY PRIVATE COMPETITIVE OWNERSHIP?

The thought that a private monopoly may get control of any industry in the United States is so obnoxious to the average American that he would scoff at the possibility of such a thing occurring. In spite of the absurdity of the proposition, there has been constantly increased propaganda to convince the American people that monopoly of the oil business, based on the need of "Conservation", was inevitable and that it would be a beneficial thing to the people of the country. An European, Sir Henri M. Deterding, and an international head of one of the two oil groups that dominate the oil business of the world, his group commonly known as the Royal Dutch, Shell, said on his last visit to the United States, "There is no place in the oil business for the little man."

Pressure and influence has been brought to bear on governmental agencies ever since the decree dissolving the Standard Oil Trust in 1911, seeking to convince public officials that immense capital was necessary to engage in the oil business; that the decree dissolving the Trust should be broadly construed; that combinations and agreements should be permitted between the greater companies wherever possible to promote efficiency; that the oil business was a "big" business and the little man had no place in it and should be put out of the business.

We now find agencies and committees and high government officials leaning towards plans and advocating measures that unquestionably will bring about private monopoly in the oil business.

The issue of whether any or all industries in this country are to be regimented under a dictatorship, as has been done in Italy and Germany, should be immediately and fearlessly faced. The regimentation or monopolization of industry should not be allowed to creep upon the American people unawares through false doctrines spread from within the Government itself.

If there are those who would repeal the Anti-trust laws and allow a private monopoly in any industry, then let the proposal be openly made; let the industries be specified; and let the rule be plainly laid down that henceforward a certain privileged few are to be given the right to exploit the remainder of us.

If some of our unfortunate citizens are not to have economic freedom, then let that class of citizens be definitely described and ostracized.

If certain of our citizens are to be deprived of the privilege of engaging in a business or profession of their own choosing while that business or profession is given over entirely to a favored group for private gain, let a new definition be put upon the word "Liberty" as the Americans who set up this Republic defined it.

If we are to tolerate monopoly, and the looting, pillaging and despoiling of the people by a favored class, then let there be erased from the records of this country all memory of Thomas Jefferson, who apparently was so short-sighted and narrow-minded and un-American when he wrote and said, "Monopoly is contrary to the genius of free government, and shall never be tolerated."

When millions of dollars are available for the purpose of spreading false doctrines and propaganda, it is easy for the oil monopoly to flood this country with propaganda predicting dire consequences if it is not allowed to continue its depredations uncontrolled and unregulated.

It can and does point to the "impending shortage of oil," knowing full well that the reserves of oil have constantly increased from year to year until we now have 18 billions of barrels of reserves, against an estimated 5 billions 15 years ago, not counting the millions of barrels consumed in the meantime.

Its propagandists can point to the "necessity" of its tremendous pipe line systems, and without a blush ignore other systems of transportation available to the general public.

It can point to its gigantic marketing operations and never say a word about the tens of thousands of little men operating filling stations who have been put on relief by price-fixing, price wars, and cruel manipulations.

It can point to its vast oil reserves and say never a word about practically every one of these fields being discovered by the courageous Independent, whom Monopoly would destroy.

The history of the old Standard Oil Trust is too well known to repeat any part of it here. The present activities of the present monopoly is being made known by the constant protests of the public against high prices and of independent citizens engaged in the production, refining and distribution of oil, and who are now suffering at the hands of monopoly.

Monopoly, as known in England, was the privilege granted by the sovereign to a select few, hundreds of years ago. It was forbidden by Parliament as contrary to the public welfare. It was forbidden before the United States of America came into being, and with the idea of our forefathers concerning Liberty and the equality of men, and the rights of our citizens to earn a living and to own and enjoy property, our public servants have been careful to safeguard and protect those rights up to this time, and there are still millions who would fight for the preservation of these rights if need be.

There is a private monopoly in the oil business. Comparatively few of our citizens enjoy the benefits of that monopoly. The general public is now protected against more extortionate prices and mistreatment at the hands of Monopoly only by the feeble resistance that a few independents in the oil business are able to offer.

These independents and the public must have relief from that monopoly.

The right to compete must be preserved, or the continued tolerance of this one monopoly is bound to result in the establishment of monopolies in all things and in the destruction of our present form of Government.

Private monopoly in the oil business may never be openly acknowledged and specifically authorized by Congress, but there are other means of establishing a private monopoly than the open recognition and permission of it by government.

The Monopoly that the independent really fears and dreads as much as anything else is a monopoly of Government.

There can be a private monopoly that is absolute in its control of an industry; there can be a government monopoly that usurps all the functions of local and weaker governments and the possibility of those who believe in private monopoly and those who believe in government monopoly getting together and coming to an agreement is something that the independent looks upon with horror.

It is generally well recognized that the Federal Government is constantly growing and that practically every department, board and bureau is undertaking broader powers and seeking more authority. There are employees of the Government, who no doubt are well meaning people, but nevertheless believe that the oil business should be regulated in every phase by the Federal Government, regardless of the rights of States. There are those among the oil monopoly who share the same feelings that every phase of the oil industry should be managed and controlled by the Federal Government but these of the monopoly who feel that way do so simply because they believe they can write the rules under which the business is to be conducted. They have heretofore had some success, especially in writing the rules and may anticipate that they can do it again. Between the two is the little independent who can not afford to maintain lobbyists in Washington to keep up with everything that is going on. He is at such a disadvantage that he can offer only feeble resistance to the passage of laws that

would first entrap and then exterminate him. The independent needs protection against any such laws; he seeks only the right to do business in the good old-fashioned American way. He is willing to take his chances as to whether he survives. All he wants is a fair opportunity without finding the cards stacked against him by Governmental regulation and restrictions on the one hand, and ruthless oppression of Monopoly on the other.

What would be the result if the Federal Government found constitutional means whereby Federal Bureaus could assume full and complete control and jurisdiction over the business of prospecting and drilling wells for oil, the building of all pipelines and refineries and their operation and the distribution and sale of gasoline?

There is little doubt in the mind of any person but that these gigantic institutions called the major integrated companies would be the ones represented upon the Boards and in the Bureaus and whose views would be heeded as to the rules and regulations. That has been the rule in the past.

How many wildcatters would go out and prospect and search for oil if they first had to get a certificate of convenience and necessity from Washington? And at every turn face the array of lawyers that would be hired to combat them in Washington. The answer is, none. They could not afford the expense because more often they could drill a well for the expense of going hundreds or thousands of miles to convince some Federal Bureaucrat that he ought to have a right to drill an oil well on his land.

How many little independent refineries would be built in communities to serve local needs if they had to face this same array of lawyers to get a certificate of convenience and necessity to build and operate a refinery. The answer is simple. None.

How many independent pipe lines would be built to new oil pools when their competitors could go before these same officials and show their powerful financial strength and other superiority in advantages over the small independent pipeline. That question answers itself; few or none would be built. Certainly none would be built where the Majors cared to invade that particular field. And so it is with marketing. Individualism and individual competition in the oil business would not merely become restricted, it would be destroyed.

It is inconceivable that if the oil business is to be regulated in its every phase, rules providing for permits of some kind would not be required as set forth above. If governmental regulation is to be made effective, then rules would have to be adopted or laws passed setting forth the basis upon which new wells could be drilled and new pipe lines built to new fields, new refineries erected, and new marketing facilities provided.

If there were a National Emergency, due to the fact that oil were being wasted or our reserves were being destroyed because of failure of local governments to provide proper regulations, then there would be some justification or excuse to take the responsibility for regulation out of the hands of local authorities and place it in the hands of the Federal Government. But no such condition exists. Everybody who is clamoring for Federal recognition either belongs to the class of Bureaucrats who want more power for themselves, or some corporation who seeks an unfair advantage for big business. They make a plea for Federal regulation with a lot of general statements. They simply say the oil business is not in good shape. It ought to be regulated by the Federal Government. No person ever recommending the Federal usurpation of State's Rights in any such fashion has ever laid down a specific basis of Federal regulation. Not one of them has ever stated in detail just what changes he thinks would be made by having the Federal Government instead of the State Government regulating the oil business.

Independents in the oil business however, know what changes would be made. They know that before they could drill a well or operate a refinery or build a pipeline or move oil in interstate commerce or produce oil from any field, they would have to go before Federal Boards and Bureaus and get their sanction. They know from bitter experience that the weak have not been recognized by the Federal Government for the very simple reason that the weak independents have not been able to maintain the contact men, propaganda agencies, engineers and experts in and around Washington. They know that if Federal regulation is brought about they would have to face innumerable of the highest price lawyers and engineers that money can buy and that there would be ruinous and expensive delays in hearing their applications and that restrictions would be too hard for them to bear and they would therefore quit business and seek some other way of earning a livelihood. This is the inevitable result of Federal regulation over every phase of the oil business.

Is it wise thing to do to put the independent oil man out of business in such fashion?

The independent has, as you know, been the discoverer and developer of oil fields. He is the pioneer and without him no new fields will be looked for or discovered so long as the major companies have, as they do at present, such a gigantic store of oil reserves on their own property.

It can not be wise to restrict or restrain private citizens from developing their own natural resources and processing them or creating manufacturing enterprises and industries at home. Yet they could not do this if the rigid rules of proration or restriction of production were applied by the Federal Government.

What would be the effect on the consumer?

As the supply of oil grows less, the price will inevitably be higher. When the independent quits prospecting, drilling, and producing oil, then the supply is bound to become smaller. With an excuse so readily manufactured, the majors can say that an increase to much higher prices is justified in order to compel oil users to take some other form of fuel. In fact, that is now the basis upon which various pressure groups, including oil men, work when they lobby for high tariffs on foreign oil. They have in mind depriving the people of the country of an opportunity to get additional supplies of oil at cheaper prices than they can obtain here.

Experience has proved that the control of production manufacturing and distribution has inevitably worked to the detriment of the consumer and no well informed person will contend for a minute that if production, refining and distribution is curtailed in the manner above set forth, that we will have 50-cent gasoline instead of 10-cent gasoline.

There is another way out that might perhaps occur to some thinking people who may be just plain American citizens and may have confidence in the plain, simple, American way of government as they have understood it: Let the individual citizen have some rights here without being made a victim of private monopoly or government domination to such an extent that his business is destroyed.

There is no room in America for monopoly in business nor a monopoly by Government.

If the Federal Government will give the Independents and consumers relief and protection against unfair practices of the present Oil Monopoly, the oil business will take care of itself; individual rights and liberties will be protected and the people will have the benefit of competitive prices in production and sale of oil.

A private monopoly is un-American; the people of the United States will never tolerate it, unless their views be changed by subversive propaganda.

The regimentation of business and the control of business in the utmost detail whereby production, manufacturing and sale of articles in commerce and the price thereof, is controlled by the Federal Government is also un-American. When the time comes that business is thus regulated, controlled and managed, then the time will have come when the United States has changed her form of government from a democracy to a totalitarian State.

To permit the present oil monopoly to exist is to give approval to the cartel or European monopoly which has been so destructive of democracy; to directly authorize the creation of such a monopoly is to gladly embrace the doctrine of totalitarianism and dictatorship and to express a readiness to disavow democracy.

This is a self-evident truth because where could there be a greater power over government than absolute control over an industry, the free operation of which our entire commerce and daily lives depend upon? Let a single individual or a limited group have control of this essential industry and there will have been given them practically all powers of absolutism.

Monopoly today, just as it was in the time of Jefferson, is dreaded spectre hovering over small businesses and individuals. It is as much the duty of Government today to seek out and exterminate monopoly as it was when the Union was formed.

Our democracy contemplated that our citizens will be protected in their inalienable rights of life, liberty and the pursuit of happiness, with the right to own and enjoy property and the right to engage in a business or profession of one's own choosing. They have the right to seek the protection of Government against unnatural competition of Monopoly, but in doing so they should not be made the victim of Government itself.

The enactment of sound laws, following the fundamental principles of our Constitution, and the making of monopoly in oil impossible is all that the industry and the public need for their protection.

EXHIBIT No. 1183

[Submitted by Mr. De Golyer]

STATEMENT PREPARED FOR THE TEMPORARY NATIONAL ECONOMIC COMMITTEE
BY E. DE GOLYER, DALLAS, TEXAS

PROBLEMS OF THE PRODUCING BRANCH OF THE OIL INDUSTRY

INTRODUCTION

The work of the producing branch of the oil industry may be divided simply into the following five types of operation, each of which, with some overlapping, is generally performed by a specialist or group of specialists:

1. Searching for prospective territory—generally the work of the operator's own oil geologists, geophysicists, and scouts.

2. Procuring of lease or fee-hold of prospective territory—generally the work of the operator's land-men or of independent brokers.

3. Drilling of exploratory or wildcat wells—generally by drilling contractors, at times by the operator's own men. In either event, under the direction of the operator's superintendents and engineers and under the supervision of his geologists. Always under the observation of geologists and scouts of competitors.

4. Development of productive properties by the drilling of wells for production—an operation differing but little from the foregoing one.

5. Production of oil—by and under the supervision of the operator's own men; production men, superintendents, engineers, and geologists and subject to the regulations and restrictions imposed by State laws.

The operations of the individual or small company differ from those of a large company in part in that more than one of these highly specialized types of operation is performed by one person. In rare cases, the individual may geologize his own prospect, take his leases, and himself superintend his drilling and production operations.

The first three steps outlined have to do with prospecting or exploration; the fourth and fifth steps with producing, mining, or exploitation. The problem of the exploring efforts is that of finding new pools—additional reserves. It is the venturesome, risky, hazardous, speculative branch of the business, always exciting and highly profitable when successful and it is one which appears to appeal largely to the individual and small company. A survey of the discoveries of the past two years, as reported in the oil journals, suggests that, in units of pools at least, the relatively small companies and individuals have made two discoveries to each discovery for the big companies. The problem of the exploiting or producing branch is that of producing reserves efficiently and economically—a problem, the solution of which is today controlled to a large extent by the restrictions of proration. The Nation's reserves are the result of the cumulative effect of past practices in both exploration and exploitation.

HISTORY OF OIL PRODUCTION

The history of the petroleum industry of the United States, as indeed of the entire world in which the United States has always played a role of prime importance as a supplier of petroleum products, falls naturally into four distinct periods: first, the lamp-oil period (1859–1900); second, the fuel-oil or transition period (1901–1910); third, the gasoline or motor-fuel period (1911–1930); and fourth, the proration period (1931 to date).

First or Lamp and Lubricating Oil Period (1859–1900).—The first period, the lamp or lamp and lubricating oil period, is marked by the initiation and development of the industry. The chief markets for oil products were lamp and lubricating oils. Substantial production was confined to the Eastern States, Pennsylvania, New York, West Virginia, Ohio, Indiana, and Kentucky. Oil was found at shallow depths and prospecting was carried on by rather casual methods. The nascent industry received its drilling tools ready-made from the old brine well drillers and no fundamental change was made in the technique of well drilling. The Chinese were drilling water wells and brine wells hundreds of years ago by methods very much like those in vogue in the United States when the first wells were drilled. The sum total of all production in the United States for this entire period amounted to only a little more than a billion barrels,—less than is being produced in a single year at the present time.

Second, Fuel-Oil or Transition Period (1901-1910).—The second period, the fuel-oil or transition period, was marked by the development of substantial production in the States west of the Mississippi River, in Texas, Oklahoma, Kansas, Louisiana, California, and in Illinois. The demand for lamp and lubricating oils continued but it was the mounting use of oil as fuel, replacing coal in the fire boxes under boilers, which provided the critical outlet for the constantly increasing production. Motor fuel was used in small quantities. At the beginning of the period the rotary method of drilling began to be used as a matter of necessity in the soft formations of the Gulf Coast and before the end of the period it was being used in California. Prospecting continued to be conducted on a somewhat casual and random basis. By the end of the period, geology, which had previously been used only sporadically, was being used somewhat generally as a guide in the increasingly difficult problem of prospecting. During this period more than one and one-third billion barrels of oil were produced, or as much as was produced during the past year, and by the end of the period, production was in excess of two hundred million barrels annually for the first time.

Third or Motor-Fuel Period (1910-1930).—The third period, the motor fuel period, is marked by the really astounding increase in the use of motor transport and the consequent rapid increase in demand for motor fuel. Gasoline became the "money crop" of the industry. Motor vehicle registration in the United States increased from 619,500 in 1911 to 23,059,262 in 1930. The rate of increase in the number of motor vehicles in use, and corresponding rate of increase in gasoline consumption are shown on the accompanying Plate I, as well as total domestic consumption of crude oil for the past seven years. The period was marked by rapid and considerable increase in the amount of capital invested in the industry. Geology became firmly established as a guide to prospecting. The use of the rotary instead of cable tools spread to the more important oil regions until, by the end of the period, its use was common practice. During this period a total of more than ten and three-quarter billion barrels of oil were produced in the United States and the annual rate of production increased to approximately one billion barrels.

Fourth or Proration Period (1931) ——The fourth period, the proration period is still one in which motor fuel is the all-important product of the industry, but its definite characteristic is that the proved reserves and potential production of the United States have for the first time become so great there is no longer any possibility of the Nation's being able to use, export, or store all the oil which might be produced by the free, open flow of existing wells and it has become necessary generally and indefinitely into the future to restrict the output from flush wells in order not to waste the Nation's oil resources. Technically, this period has been marked by great improvement in the techniques of prospecting and drilling. Geophysics, which had been introduced as an aid to prospecting in the early and mid-twenties, has become of great importance. The rotary has been almost universally used for drilling and a marked increase in drilling depths has been notable. Many inventions, such as electrical coring, shot-gun perforation, and stage cementing have become a part of standard practice and greatly increased the value of the rotary as a prospecting tool. This period has also seen the rise of petroleum engineering as a distinct profession and has been marked by a great improvement in the technique of production. During the period, approximately eight billion barrels of oil have been produced up to the present and the annual rate of production has increased slowly from some seven hundred and eighty-five million barrels of oil in 1931 to approximately one and one-third billion barrels of oil during 1938.

MAGNITUDE OF THE PRODUCING BRANCH OF THE INDUSTRY

More than three thousand separate pools of oil and gas have been discovered in the United States since the beginning of the industry in 1859. They range in size from the mammoth East Texas pool, with an estimated ultimate production of approximately three and one-half billion barrels of oil or ten percent of the estimated total past production and proved reserves of the United States, to scores if not hundreds of one-well pools which have produced only a few thousand barrels of oil. In order to discover and develop these pools, almost a million wells have been drilled. These wells range in depth from the shallow wells of less than one hundred feet, drilled by man power in the early days of the industry, to the world's deepest drilled hole, completed during the early part of the past year to a depth of fifteen thousand and four feet. More than one-fifth of these wells were dry holes and consequently failures. About one-twentieth of the wells were gas

wells. The remaining three-quarters were producing wells. Approximately one-half of the producing wells have been exhausted and abandoned, leaving some three hundred and fifty-five thousand wells which are producing at the present time. Twenty-one billion barrels of oil have been produced and the Nation's proved reserves are variously estimated at fourteen to seventeen and one-third billion barrels. Current production, approximately in balance with consumption, is one and one-quarter billion barrels annually, or three and one-third million barrels daily. More than one gallon of oil per capita is consumed daily in the United States.

Such in brief, is the present picture of the oil producing branch of our great industry.

OUTLINE OF PROBLEMS

For the man who expects to become an oil producer there are two outstanding and difficult problems to be considered. The first of these is the problem of oil finding, of successful prospecting or exploration. The second of the problems is that of proration—the amount which he will be allowed to produce. This second problem is industrial, State, and Nation wide in scope, highly complex, and not yet solved; only in process of solution.

If a man wishes to become a producer of oil he will have to secure control, probably by leasing or purchase of leasehold, of a tract of land underlaid by oil at drillable depth. This is the critical step and before he takes it he should decide to what particular part of the wide possible band of endeavor he wishes to direct his attention. There are more different types and grades of potential oil properties than there are types of securities listed on the stock exchanges of the world. He may buy an undrilled lease, surrounded or practically surrounded by nearby producing oil wells. In such case, the cost of the lease will be great, the cost of development great, the returns slow and he may or may not make a profit. The risk of actually finding oil in commercial quantities under such conditions will probably be so low as to be negligible. It will be the high costs which make the matter of profit a risky one. At the other end of the scale of endeavor is the possibility of taking a block of leasehold, away from any existing wells, and drilling a wildcat or prospect well. In this case, the cost of the leasehold should be very low—in favored cases he may even secure it in consideration of assuming an obligation to drill the well. The cost of the well will be greater than that for a development well in proved territory. The returns may be anything, in case of success running into the millions.

Problems of Prospecting.—Risk of Prospecting: The hazard of such enterprise is, however, very great. On averages, for the United States over the entire history of the industry, I should say that his chance of success has been as low as one in thirty to forty trials. Lahee¹ has recently reported on wildcat statistics for the area including Southeastern New Mexico, Arkansas, and the States bordering on the Gulf of Mexico. He reports the ratio of successes to wildcat wells drilled for this area as gradually improving from one in thirteen in 1935 and one in nine for 1936 to one in eight for 1937 and 1938.

There are any number of types of venture in between the two described. The development of a proved lease is a simple mining problem. It is in the degree to which the problem is a prospecting problem that risks and, commensurately, profits become large.

Prospecting for new pools is the essential and critical business of the producing branch of the oil industry and is a part of its ordinary daily routine. The industry is pressed by really tremendous consumptive demand and while the reserves are such as to occasion grumbling by individuals intent on making a quick hit-and-run fortune, they are not large from the standpoint of capital invested nor from the viewpoint of National requirements.

The odds of thirty to forty to one which I have quoted as an estimated historical average cover all sorts of practice, good, bad, and indifferent. They cover a long period when the industry had no rational technique of prospecting. I suspect that more than half our known oil, past and present, has been discovered by random and casual drilling. These results are a monument to the nerve and persistence of thousands of wildcatters, without the results of whose efforts the industry would not have been able to supply the constantly increasing demands of the motor age but they are not very tempting as an inducement to enter the oil business. The averages in ordinary hit-or-miss wildcat drilling of the type that marked the early history of the industry are undoubtedly much greater than the

¹ Lahee, Frederick H., "Wildcat drilling trends, The Oil Weekly, March 27, 1939 (abstract) p. 65.

general average. There are no definite statistics but they may be as great as a hundred or more to one.

Within the last quarter-century, however, the industry has learned much about the occurrence of oil and has developed a rational and almost constantly improving technique of prospecting, both as to selection of drilling sites and in the drilling of exploratory wells. Costs of prospecting are considerably higher than they were in the first half-century of the industry but the chances of success have improved considerably.

In prospecting by the best modern practice, the odds against success, as reported by Lahee, are probably as low as six to seven against one. The odds against success in casual or random drilling are certainly greater than twenty to one.

According to best modern practice, one should lease an area under which, as a result of geological or geophysical surveys or a combination of both, he has reason to believe that a trap or reservoir—structural or stratigraphic—exists in the rocks. Considerably less risk is involved if the area is so located that it is underlaid by a series of rocks known to be oil-bearing in other and perhaps similar traps, and they often extend over wide areas. At a location on such block, selected as a result of competent geological advice, one will drill a wild cat or test well to a depth great enough to test all probable oil-bearing formation or to the greatest depth possible and practical. The formations in this well should be checked for identification purposes by a paleontologist, a specialist who can determine the age and often the exact position of a formation by its lithology and fossil content. The well should be cored at critical points, formations showing oil should be drill-stem-tested and the well should be cored electrically. If any of these tests give results promising enough, the well should be cased through all important showings of oil or gas, the casing cemented and the casing perforated opposite the shows to be tested. If our adventurer is successful, he should have a flowing oil well and be an oil producer. If he has proceeded properly and the well is dry, the chances are that he has failed and will abandon his enterprise to seek another. Rarely, the first well may fail but the indications be promising enough to justify a second test on the same block. This is not common.

Technical Experience Available.—At this point, I can hear you say, "But all this is extremely complicated and only to be attempted with the resources of a skilled technical organization such as one would find only in an operating company." Your conclusion is wrong. There is no step in the entire chain of events for which you may not secure technical assistance of as high an order as that employed by the companies themselves from men not connected with any company. There are many competent and independent geologists whose services may be engaged in order to assist in selecting the site; there are many competent and independent geophysical service organizations who can map the structure of the prospect in order to determine whether or not a trap is present; there are scores of competent and independent lease brokers who can take the leases; there are dozens of competent and independent drilling contractors who will engage to drill the well to the required depth and complete it properly and in a workmanlike manner. There are independent service organizations to case, cement, perforate, electrically log or perform any other required service. Scores if not hundreds of wells are being drilled currently at any time with the assistance of these independent service organizations of unquestionable competence.

Experience.—Experience is desirable but not essential. To reduce the matter of finding oil to a business rather than a speculation our adventurer will have to venture more than once. The drilling of a single well is a speculation. The drilling of hundreds of wells is a business. He will acquire experience as he proceeds.

The oil producing industry of the United States was brought into being and has been developed by men starting with little or no experience. The second oil discovery, that of the Franklin, Pennsylvania pool, was made by a blacksmith who drilled near an oil seepage on his own farm with tools crudely forged on his own anvil from iron bought on credit from the local hardware merchant. The well was "jumped down" to success with the aid of his stalwart son. It was as easy as that in the simple and idyllic times of the beginning of the industry.

There is only one possible way to discover an oil pool and that is by drilling a well. Even the best drilled and deepest well cannot discover oil however if it does not exist in commercial quantities in the series of rocks and at the place penetrated by the drill. The problem of successful prospecting therefore presents two separate and distinct phases; the all-important one of selecting a suitable location for the prospect well and secondly, that of properly drilling the well.

The drilling of the well is essential and important but it is an operation which generally can be begun with assurance of completion and which, if successfully accomplished, is still dependent upon proper location for completion as an oil well. Ninety-nine percent of the risk of prospecting is dependent upon the proper selection of site, and in this matter even our highly improved technology has not yet advanced to the degree of perfection where it can guarantee the success of any single wildcat location.

We have no tried and proved technique of actually and definitely locating an oil deposit of commercial importance in advance of the drill. The best that we can do with our present technique—geological or geophysical—is to locate a trap or reservoir—structural or stratigraphic—which may or may not contain oil in commercial quantities.

As Pratt² has said, "The enterprise of winning oil from the earth is essentially a geological venture," and as I have said elsewhere,³ "The industry cannot deny that it is, to borrow terms from the mathematician, a dependent function of an independent variable—exploration."

Successful prospecting or exploration results in discovery and the balance between accumulated discovery and accumulated production is reserve or blocked out and unmined oil for future consumption. The health of the Nation as to oil supplies, and of any individual oil company, for that matter, is dependent upon adequate reserves and so, in the final analysis, upon successful prospecting.

The rate of increase of proved reserves in the United States is indicated on the accompanying Plate II.

Technique of Prospecting.—Granting that the actual drilling of the prospect well is a mechanical operation which can be undertaken in most areas without much risk of failure, the problem of prospecting resolves itself into that of the selection of a proper site for the exploratory well.

This is now the problem of the geologist, the ideal site being one for which he has evidence that sands or other porous rocks, known to be oil-bearing elsewhere, exist at drillable depths under conditions, stratigraphic or structural, suitable to form a trap.

The technique of successful prospecting—of the selection of a suitable site for the prospect well—is a dynamic thing. It has been, in fact, a series of changing techniques and subject to constant effort to improve either by the development and introduction of entirely new methods or by the extension and refinement of existing methods.

Even the oldest and most primitive methods are useful in relatively new and untried territory but for most of the oil-bearing regions of the United States, the prime usefulness of any new method is practically exhausted within a few years of its discovery.

The occurrence of oil springs, seepages, or natural gas, occurrences of asphalt, oil-impregnated rocks, or oil shows in wells drilled for other purposes—the direct indications—were the first commonly accepted guides to the location of sites for exploratory wells. Oil fields were found in Canada, New York, Pennsylvania, West Virginia, Ohio, Indiana, Kentucky, Kansas, Oklahoma, Texas, Louisiana, Wyoming, California, Mexico, and in every one of the important oil producing nations of the world by drilling wells near oil springs or some other direct indication of oil.

The earliest successful wells in practically every country were drilled because of the occurrence of direct indications. It was the common habit of the early mineral prospector to seek the mineral beneath the surface of the earth, some form of which was found at the surface.

The value today of direct indications as a guide to prospecting in the United States is practically nil. Most direct indications have already been prospected. We know well enough that they are not essential and many important oil fields have been found and are being found currently where direct indications are lacking.

As the producing industry continued to expand in the United States, a crude technique of prospecting began to be developed empirically. The Drake well was drilled in the valley of Oil Creek, Pennsylvania, and for some time the opinion was held that pools would be found only in valleys. Development spread to the adjoining hills. Wells were located by "oil smellers," "spiritualists," and hazel

² Pratt, Wallace, Oil production—its development and stabilization. Address before Natural Resources Round Table, U. S. Chamber of Commerce, Washington, May 1, 1935.

³ DeGolyer, E. Future of petroleum exploration in the United States. *Bull. Amer. Association Pet. Geologists*, Vol. 21, p. 714, 1937.

twig artists. Trend lines, lines established by the major axes of pools already developed or by lines connecting two pools were in great vogue. Topographic and physiographic resemblance had devoted adherents who certainly would not have recognized their methods under such names but who liked a certain location because it resembled some other area in which oil had been found.

Geologists early began to speculate regarding the occurrence of oil. Henry D. Rogers, Regius Professor of Natural History at the University of Glasgow, State Geologist of New Jersey, 1835-40, and of Pennsylvania, 1846-58, within nine months of the completion of the Drake well, noted that the newly discovered oil fields were on anticlines and in 1861, T. Sterry Hunt, then chemist on the Canadian Geological Survey, made a clear statement of the anticlinal theory of oil accumulation; a theory which he elaborated a few years later into a fairly comprehensive, workable theory of petroleum origin, accumulation and occurrence. He was followed by Andrews, Professor of Geology at Marietta College, Ohio, and later by H. Hofer, a visiting Austrian geologist.

The time was not ripe for the entrance of geologists into the petroleum industry. The anticlinal theory was opposed vigorously by J. Peter Leslie, head of the Second Geological Survey of Pennsylvania (1874 to 1888). The Canadian, West Virginia, Ohio, and Indiana Geological Surveys stood definitely for the theory of anticlinal accumulation; the Pennsylvania Survey, the official survey of the then most important oil producing State in the world, under Leslie's direction, stood bitterly against it. Even the geologists who stood for the anticlinal accumulation theory were not of a single mind. Many of them believed the important function of the anticline was to cause fissuring in the rocks along its crest and that the oil found reservoir space in these fissures. The "fissurites" died slowly. Alexander Winchell, State Geologist of Michigan, suggested as early as 1860 that sandstones themselves were sufficiently porous to contain oil and Carll, oil expert to the Second Pennsylvania Survey, showed that the normal porosity of sandstone was great enough to account for the most productive wells yet discovered.

The truth of the matter is that there was no economic need for any elaborate technique of prospecting in the early days of the industry. The oil pools found were at very shallow depths and there were enough adventurous spirits to discover oil by hit or miss methods in quantities great enough to supply the Nation's needs and even cause over-production from time to time. Furthermore, it now appears that stratigraphic traps were of great enough importance in Pennsylvania to justify some degree of the scepticism shown by J. Peter Leslie.

In the early eighties, I. C. White spent some time in studying the geology of the great gas wells that had been struck in the Appalachian district and concluded that, "the rock disturbance caused by anticlinal waves was the main and important factor in the occurrence of both petroleum and natural gas." In later years he put that discovery into practical operation and located the important Mannington oil pool, West Virginia, the Washington oil pool, and the Grapeville and Belle Vernon gas fields, Pennsylvania. White is generally regarded as the father of the anticlinal theory, an honor to which he seems well entitled since it was he who reduced it to practice.

The oil industry continued on through the first or lamp and lubricating oil period (1859-1900) and the second or fuel or transition period (1901-1910) without taking advantage of the knowledge won with regard to the occurrence of oil except sporadically. Edwin T. Dumble became a geologist for the Southern Pacific Railway Company in 1897; W. W. Orcutt became a geologist for the Union Oil Company of California in 1898, and A. C. Veatch was geologist for the Houston Oil Company for a short period in 1901 to 1902.

From about 1907 to 1915, an important series of reports on the geology of various oil producing areas from Pennsylvania to California was published by the U. S. Geological Survey. This series of reports was fairly convincing to any unprejudiced observer that geology could be of value as a guide to prospecting.

With the beginning of the third or motor fuel period (1910 to 1930) the necessity for increased production and reserves imposed upon the oil industry by the rapidly increasing use of automobiles and the fuel demands of the Great War forced the industry to improve its prospecting technique and by 1915 a Geological Department was the rule rather than the exception in any well organized oil company.

Improvement in the technique of selecting the proper site for a prospect well has, since the general acceptance of geology as a guide to prospecting in the oil industry, become entirely a matter of improvement and refinement in technique and in the geologist's ability to interpret the value of prospects against the background of constantly increasing experience.

Development of Geological Technique.—As a prospector, up to the present time the geologist has been almost altogether a hunter of geologic structure.

The earliest work of this sort was done by mapping surface outcrops and depended upon some degree of parallelism between the outcropping rocks and the buried rocks in which oil was sought. The earliest mapping of surface rocks as an aid to prospecting was probably that done by I. C. White, who determined the elevations of the outcrop of his key bed by running a line of spirit levels. Much of the early work was done by mapping the dip and strike of occasional outcrops with a hand clinometer, and another early method was the simple mapping of the distribution of outcropping formations. The plane table, an instrument admitting simplification and refinement in mapping, was introduced into the industry in the early 1900's and was in common use by 1913.

The value of surface mapping as a prospecting technique has been almost exhausted in the United States. Most of the area of the known oil regions has been mapped many times by surface methods and as prospecting has consistently tended toward greater depths, the geologist has been able to place less dependence upon his ideas as to the relationship of surface and subsurface beds. In the early 1920's, the oil industry found itself in great distress because it had by then practically exhausted the main values of surface mapping, and no new technique had yet been developed.

Subsurface studies are as old as the oil industry. The first systematic and comprehensive use of subsurface studies in the oil industry, however, probably began with the organization of a subsurface branch of the geological department of the Empire companies by A. W. McCoy about 1917. This is the one continuing technique in the art of prospecting and the one upon which we will have to depend when all other techniques have been exhausted. Subsurface studies are in fact what the name implies: geologic studies of the earth's constitution and structure below the surface as revealed by information obtained from drilling wells. At first dependent upon the crude logs of drillers, these studies have become refined and extended through the proper collection and study of drilling samples, through the use of micro-paleontology, and—particularly within recent years—through the use of electrical logs.

Core drilling, or the drilling of wells for the single purpose of giving information as to geologic structure in areas where it is not revealed by surface outcrops, was introduced into the United States during 1919, met with considerable success in the early 1920's and is still used in special areas, such as western Kansas, at the present time.

Rise of Geophysics.—In the early 1920's the geophysical methods were introduced into the United States as an aid to prospecting and this was probably the greatest single advance we have made in the development of our technique of oil-finding.

The torsion balance, a rugged field adaption of an older laboratory instrument, valuable for the determination of variations in the earth's normal or regional gravitational fields and so, useful in helping to unravel the problems of subsurface geology, was introduced in late 1922 and has proved of considerable service in the search for salt domes, the type of structure with which the oil deposits of Coastal Texas and Louisiana are associated. It has since been largely replaced by the pendulum and gravimeter.

In early 1924 the refraction seismograph was introduced into the Texas and Louisiana coast. It proved to be very successful in locating salt domes. Not to be confused with the reflection seismograph, which is now being widely used, it depended for its success upon recognizing different formations from different rates in the speed of transmission of artificially induced sound waves. The velocity of sound through salt is at the rate of fifteen or sixteen thousand feet per second. Through the ordinary sands, clays, and shales which make up the country rock of this area, the rate of transmission is generally five to six thousand feet per second. Dynamite was exploded at the shot point, the time of firing transmitted by radio to recording instruments at a known distance (generally two to five miles) away and the existence of a salt dome was indicated by the arrival of the sound of the explosion through the earth in less than normal time: the so-called "lead" of the seismograph operator. By 1927 or 1928, dozens of crews were in operation and the whole Gulf Coast area was at the height of a hectic campaign of exploration. The campaign was extremely successful. Some fifty or sixty domes, practically as many again as the number previously known to exist, were discovered by its use at an expense for geophysical work alone of twenty to thirty million dollars. By the early thirties the whole area regarded as prospective salt dome territory had been explored, some of it five or six times by different companies, and the refraction method had practically

exhausted its usefulness. We have here a clear example of the rise, use, and fall of a new prospecting technique within a period of about seven years.

The reflection seismograph, the use of which is dependent upon its ability to measure the depth to some reflecting bed by recording with great precision the travel time of a sound wave generated by a dynamite explosion near the instrument, was reduced to practical use by Dr. J. C. Karcher in 1926 or 1927 and by 1930 the work had been checked conclusively and with excellent practical results. This opened up an entire new field of endeavor for the geophysical instruments, since the new technique was usable in most of the oil bearing regions of the United States. The structure of deep lying beds was mapped and are being mapped with great precision through its use and the structural geology so revealed is generally more exact than can be determined by other methods. Its use has considerably lessened the risk of prospecting. Various other methods such as magnetic surveys and electrical surveys have been used and research in the possible use of soil surveys is now being carried on, but none of these methods has yet proved a degree of usefulness comparable with that of the gravity surveys, refraction seismograph, or reflection seismograph methods. At present we are still in the period of prospecting with the reflection seismograph technique.

Effect of New Prospecting Techniques on Small Operators.—Prospecting in advance of drilling has become an expensive affair since the advent of the core drill in 1919 and of the geophysical methods in the early 1920's. As late as 1914, the directors of one large company refused to allow their technical staff to core drill for structure because of the expense involved. Today such expense although large has proved its value by reducing the hazards of prospecting. On volume operation the cost of oil finding or successful prospecting for good (not average) practice is probably ten to twelve cents per barrel against a similar cost for the early twenties of twenty to twenty-five cents per barrel. The cost of actual field operations has increased substantially but the oil per unit field found has increased considerably and the hazard of prospecting has decreased considerably. While much geophysical work is done by small companies, individuals, and independents, it is very doubtful whether the proportion of the total effort made by them toward finding new fields is as great as their proportion of the total current production. Information regarding prospects has only a transient value to its finder. Within a few months it generally becomes common knowledge in part or in whole and much of the efforts of the independents is directed toward securing leasehold or royalty rights on such prospects. Most of their efforts is still directed toward a reinterpretation of available facts by old methods or within the scope of the residue of usefulness of the older techniques.

PROBLEMS OF PRODUCTION

No reasonable understanding of the problems of production can be had without some consideration of the conditions controlling the occurrence of oil in the earth's crust nor without a knowledge of the difference between old style, open-flow, preproduction production practices, and best current production practices under the regulation of proration.

We can only speculate as to the origin of oil and the manner of its accumulation. We do not know. It can hardly be doubted, however, that oil pools are secondary accumulations formed slowly over time long enough to be measured in geologic time rather than by years.

Oil generally occurs in these pools under pressure in high traps or reservoirs—structural or stratigraphic—and is generally supported in them by the floor of water which fills that part of the wide area of reservoir rocks not occupied by the oil and gas. Gas may be present separately but generally it occurs dissolved in the oil somewhat as carbon dioxide is present in solution in soda water. The effect of this gas in solution is to lower the viscosity of the oil, and by expansion when pressure is released, afford an expulsive force which causes oil to flow from the well or from the sand to the well. In this flowing effect it is of an aid by the pressure of the water floor which tends to follow the oil body as oil is removed.

The permeability of the reservoir rocks in most oil fields is so low that the contained fluids move but slowly through them. Manifestly, an attempt to produce the oil so accumulated in the short period of a few years is a violent reversal of the slow natural process through which it was accumulated and often results in waste of oil, of expulsive force, and of favorable viscosity.

In the early days of the oil industry, wells were drilled by the cable-tool system. In this system, hole was cut by the striking of the chisel-like bit, held on the end of an up-and-down moving cable. The hole was cased as required and kept open and dry except for a small amount of water to facilitate drilling. When an

oil sand was encountered, casing—generally 4½", or 6", or 8"—was set and cemented on top of the sand, the well was "drilled in," cleaned and produced to capacity through the open casing. It was no unusual thing for wells to be produced at the rate of many thousand barrels per day each, in the flush period of the development of a prolific pool.

About 1901 the rotary system of well drilling was introduced into the Gulf Coast of Texas and Louisiana, where wells could not be drilled by the cable tool system. By 1910–1912 the use of this system had spread to California and in the early twenties into Oklahoma and other parts of the United States. It has now largely superseded the cable tool system in our most important developing oil regions. By this system, hole is cut by a bit on the end of a hollow drill stem, the cutting being accomplished by the rotation of the bit by means of power applied to the drill stem at the surface. Mud is pumped through the drill stem into the well, the escape points being near the cutting edge of the bit. Mud is kept in more or less constant circulation, being forced by powerful pumps through the drill stem to the bottom of the well, where it picks up cuttings resulting from the drilling operation, and carries them to the surface, flowing from the mouth of the well to slush pits where, after the cuttings settle out, it is picked up again by the pumps and again forced down the drill stem. The advantages of this system are speed, ability to drill through soft and caving rocks, economy of casing required and consequent ability to go to great depths. In drilling by this system the hole is constantly filled with mud until the well is actually finished and cleaned. The disadvantages of the system, old style, were the ease with which oil-bearing formations could be passed through without recognition and some difficulty in properly finishing wells. Once casing (and screen in regions of soft oil sands) had been set, the mud in the well was thinned by pumping clear water through the circulating system and the hole was finally unloaded by bailing out water. After the water level had been lowered a thousand feet or so by bailing, if the well did not flow, it was further urged by the rigorous treatment of swabbing. Commonly the well was allowed to flow over the derrick in order to clean itself and often produced into open pits, pits from which the clean oil was picked up by auxiliary pumps and pumped to field storage.

Within the last decade the rotary system has been substantially improved through the invention and improvement of core barrels, electrical logging, selective cementation, and shot gun perforation, until it now has no superior for either exploration or exploitation in oil field practice.

In the completion practices of today the position and thickness of oil bearing sands is determined with great precision by means of electrical logs, cores for detailed examination are taken from important sands or other formations, the well is drill stem tested, casing is set and cemented through the sands to be tested; the sand thus sealed is reopened for production by a number of holes made by firing steel projectiles through the casing and into the sand—so-called "shot gun perforation." The mud which fills the well is thinned by circulating clear water; tubing with chokes—¾" is common practice—at top and bottom is set; and the well is allowed to flow itself in under rigid control and so slowly that it may take three or four days for it to unload the water.

I have tried to condense and simplify these descriptions and comparisons of old-time open flow practice and best present day practice. The one point of difference between the two practices which I wish to develop and emphasize is the violence of the old-time practice of bringing in a well by either the cable tool or rotary system, when a well was allowed to flow casing-full to the last barrel it would make, as compared with the easy and undisturbing method of bringing in a well slowly and under control. It was common in the past to open a well wide and allow it to flow over the derrick—either to clean itself or as a spectacle. There are probably young oil engineers today who will never see a well flow under such conditions.

The difference between old open-flow practice and present day restricted flow production is well shown by the accompanying field graphs of Charts 1 to 5, inclusive. The Mexia, Powell, Burbank and Long Beach fields (Chart 1) were produced largely under open flow conditions with sharp initial peaks and quick decline in production. East Texas and Oklahoma City (Chart 2) were prorated imperfectly and under considerable difficulty.

Santa Fe Springs, Oklahoma City and Conroe (Chart 3) show three fields of the same order of magnitude as to reserves but produced under different conditions. Santa Fe Springs, rejuvenated by the development of a deeper zone in 1929, shows practically open flow conditions. Oklahoma City shows tremendous variations arising out of imperfect proration, and Conroe shows the results of effective control.

Caillou Island and Hobbs (Chart 4) show fields which have been effectively controlled. Rodessa and Pitts show fields but poorly controlled.

Dominguez, Sugarland, Lake Barre, and Thompson's (Chart 5) show fields which have been well controlled.

The greatest achievements of our present conservation practices have been brought about through this slowing down process. The ruthless competition engendered by the law of capture has been defeated by it. The waste of gas in solution has been checked and the flowing life of the well greatly prolonged by it. More of the oil originally in the reservoir is recovered because of it. The production curves, well, lease, individual, corporate, State and National, have been flattened out and peaks and valleys largely eliminated. We now expect to produce from a well or property flowing in ten to fifteen years what we formerly produced in ten to fifteen months and because of this an oil property has become bankable collateral, and the independent—individual or company—is able to finance the development of his property without undue sacrifice. The entire industry has been made more stable and the Nation profits from dependable production and cheap products such as would not have been possible under a continuance of the old practices.

PROBLEMS OF PRODUCTION

Proration.—Proration of oil production is the rationing of allowable production to individual units—wells, groups of wells, or geographic areas—whose collective capacity to produce exceeds the total allowable. It is strictly an affair of the individual State and, where operative under legal enforcement, rests upon the authority of the conservation laws and is administered by a designated regulatory body through the use of the police power of the State.

Conservation, when it was first seriously proposed about 1908, was regarded, somewhat academically, if it was defined at all, as a simple rigid preservation of natural resources. Within recent years it has been more sanely defined as a wise use of our natural resources. Wise use must imply to the consumer—to the Nation—the continuance for the longest possible period of an adequate supply of oil at a reasonable price.

Fundamentally, proration from its very beginning has been intended to prevent waste—to conserve the Nation's oil in the public interest. The State has been interested in the protection of its oil resources since the early days of the industry. Laws relative to the plugging and casing of oil wells were passed as early as 1878.

Proration, as we now have it, is a developing production control, by no means perfect, but subject to improvement as we gain experience in its operation. Its chief weaknesses are that it is not yet exercised by all oil-producing States, and that it is sometimes unequal and uneven in its effects in different States. The necessity, real or believed, of allowing a continuation of bad practices started before regulation became really effective, such as those resulting in the present absurdly high well densities in the East Texas and Oklahoma City fields; the political pressure brought by various interested groups; the continual necessity for readjustment forced by the crowding in of newly discovered production; all these and many more make proration even within the limits of a single State almost too complex to be administered without many apparent injustices and inequalities.

Actually, the prevention of waste has been achieved generally by a slowing down process—by a restriction of the daily rate of production. Since the preservation of equity between the various producing interests is an essential part of the proration concept, in fact the very term connotes equity, the simplest way to continue the relative positions enjoyed before restriction seemed to be by projecting the past—by basing allowables upon potentials.

While this may have been the most practical solution in the very beginning, we realize more and more that it is not a true conservation solution, and that more weight must be given to other factors, notably reserves.

The greatest achievement of proration, to the present, has been directed to insuring length to the period of adequate supply. Too little has been done toward insuring conditions of reasonable price through the necessary prerequisite of providing reasonable cost.

In my opinion, this is in part the fault of the industry and in part the fault of the States. The industry has done much in speeding up drilling rates and so keeping costs down in the face of constantly increasing depth to which it is now required to drill. To my mind, however, the practice of now drilling seven-inch holes to the producing sand, as was done in the old days of open flow, and then choking them to a fraction of an inch at top and bottom, as is often required at present in

order to properly restrict to daily rates of production not likely to be exceeded for many years to come, if ever, is subject to improvement.

Likewise, the common policy in some States of basing allowables too much on potentials and individual wells has encouraged and often forced the producer to drill his wells on a pattern of absurdly close spacing. This has its effect on cost. If the daily allowable can be produced from one well instead of four and, if over the long period of time available, as much oil can be produced per acre by one well to forty acres as by four wells for the same area, it is wasteful to produce oil at four times the necessary drilling cost per barrel.

We do not know too much about well spacing. Unfortunately, the individual oil pool, once exhausted under a certain well pattern, cannot be restored and again produced under a different well pattern for comparative purposes and an oil pool is a unique thing.

We do know, however, that the amount of oil which can be produced from a single pool depends upon many factors, among the most important of which are the volume and physical characteristics of the oil, the permeability and water and gas content of the sand, the pressure of the edge water or water drive, the energy of the gas dissolved in the oil, the well density, and the rate at which the oil is produced or the time factor. The effect of many of these factors is, in part at least, interchangeable. Heavy water drive or long time would compensate for low permeability. Extremely high permeability would shorten the time required for production. I believe that in the average pool with water drive, a well tapping the reservoir at its highest point could produce effectively the entire amount of oil recoverable from the field by ordinary methods. This concept is of greater theoretical than practical importance, however, for the time required might run into hundreds of years. I cite it only to emphasize the importance of the time factor. Now by the very nature of effective proration we have had the time factor increased substantially. It is doubtful whether we will again see conditions under which half the oil from a prime lease can be produced during the first twelve months of its exploitation, half the remaining oil produced during the next five years of its life and the residue produced during the succeeding ten years, as was common during the pre-proration days of open flow. Too much emphasis can hardly be placed upon the importance of this lengthened time factor in the exploitation of our oil pools. With lengthened time factor, we can decrease the density of wells and widen our spacing and increase the amount of recoverable oil. To what extent the spacing distance can be increased is a special problem for each pool but, in my opinion, generally we can go far beyond any pattern used today.

In order to see the possibilities and effect of wide spacing, we must go to foreign fields for in our own country, even where a single ownership or unit operation is in effect, we are too much influenced by custom and the convention of past practice. In the famous Potrero del Llano field of Mexico, almost the entire production came from a single well which, in a period of some ten years, produced over one hundred million barrels. This was a field of heavy water drive and in which the producing rock had exceedingly high, almost infinite, permeability. In a similar Mexican field, Los Naranjos, from a score or so of wells, some two-thirds or more of the production was produced within a single year. In these fields the like of which have not been found in the United States, time and well spacing were almost interchangeable. A fairer example for comparison is the Bahrain field in the Far East, where, with underground conditions not dissimilar to those of certain American fields, the field is being developed on a spacing pattern of some 160 acres to the well.

RESERVES

There is no basis for an estimate of the total petroleum reserves of the Nation since much of the reserve is still undiscovered and unproved. For the proved reserves, however, the best estimate available is that of the Committee on Petroleum Reserves of the American Petroleum Institute.

This Committee estimates the Nation's proved petroleum reserves as of January 1, 1939, at 17,348,146,000 barrels. The detail of this estimate together with pertinent production data as arranged by Dr. Joseph E. Pogue in his recently published "Economics of the Petroleum Industry" is set forth in Table I. The column headed "Indicated Life in Years" is to be regarded as a ratio of current production to reserves and so as a measure of quickness of reserve. It would not be possible to produce the corresponding reserve in the number of years indicated, even if it were regarded as desirable to do so.

Corporate Control of Reserves.—There are almost no generally available estimates of reserves by company ownership which can be used for comparative purposes since it is seldom that two companies estimate their own reserves on the same basis and only a few companies publish estimates of reserves. Some crude guesses can be made, however, and upon such material, various groupings can be made which are probably more exact than the guesses upon which they are based.

Approximately ten companies own half the gross proved oil reserve of the United States. Outstanding with regard to reserve position is the Standard of New Jersey group, including the Humble Oil & Refining Company, with almost two and one-half billion barrels of gross proved reserve. It is followed by four companies with gross proved oil reserves of the order of magnitude of a billion barrels each. Approximately three companies are in the one-half to three-quarter billion barrel class; nine or ten companies in the one-quarter to one-half billion barrel class; six to eight companies in the one hundred million to two hundred million barrel class and probably a dozen companies in the fifty to one hundred million barrel class.

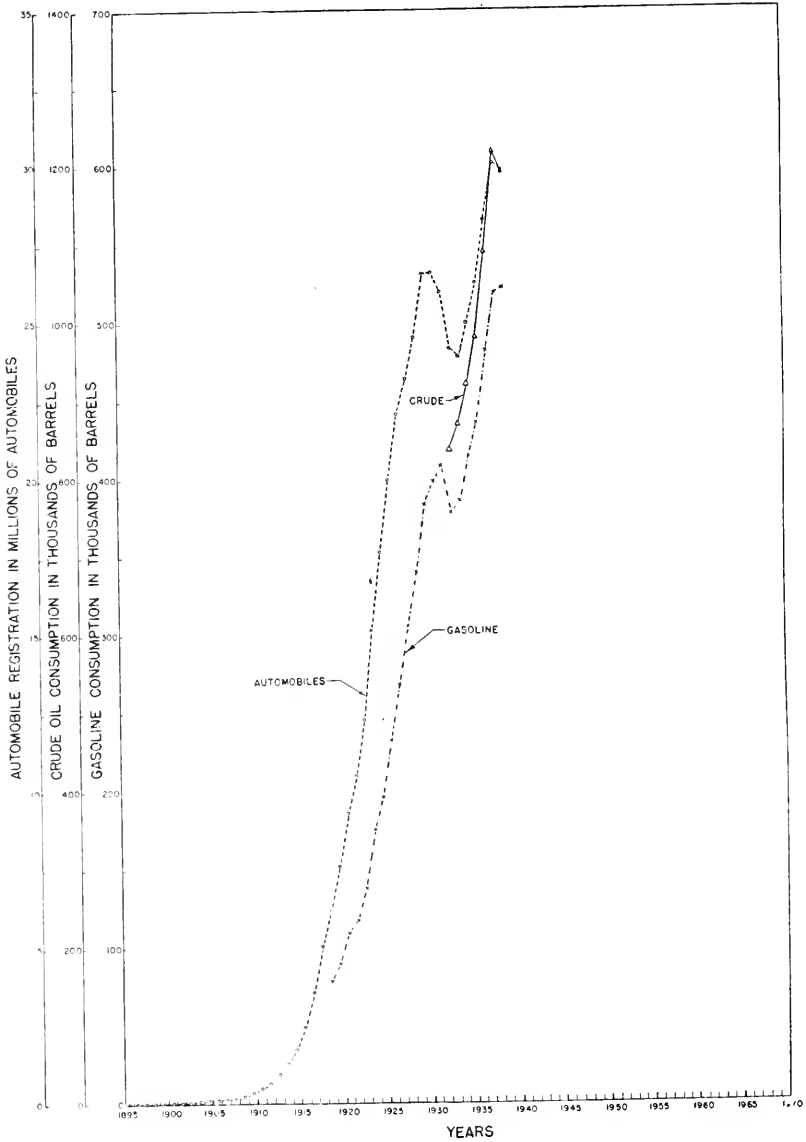
On a net basis approximately one-third of the Nation's reserves are owned by the so-called old Standard companies; one-fourth by small companies or individuals, some of which have a reserve of as much as twenty-five million barrels; one-fifth by the ten principal independents; and from one-sixth to one-eighth is royalty owned by landowners and royalty owners.

Whether by force of circumstance or design, the big companies are able to market their reserves less rapidly than are the small companies and individuals. The ten largest companies estimated to own one-half the gross proved reserves for the United States, had a gross production of 36.8 percent or a net of 31.5 percent of the Nation's production. The thousands of individuals and smaller companies owning the other one-half of the proved reserves had a gross production of 63.2 percent. The Jersey group's reserves are being produced at approximately forty percent of the rate averaged for the rest of the Nation's production.

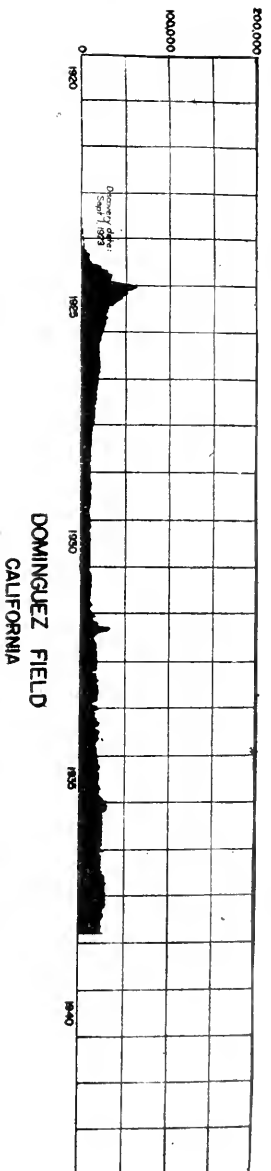
There are no dependable statistics with regard to the number of companies and individuals engaged in the production of oil but the number will run into the thousands.

Oddly enough, Nature seems to have distributed occurrences of oil with about the same degree of unevenness as reserves are now held by corporation and individuals. With more than three thousand pools discovered in the United States, the mammoth East Texas pool stands first with an estimated ultimate production of three and one-half billion barrels or approximately ten percent of the total of the Nation's past production and estimated proved reserve. Half the total known oil, past and proved reserve, is accounted for by thirty to forty pools. There are at least two one-billion barrel pools; ten or more half-billion barrel pools; dozens of hundred million barrel pools; scores of twenty-five million barrel pools; and hundreds of lesser pools.

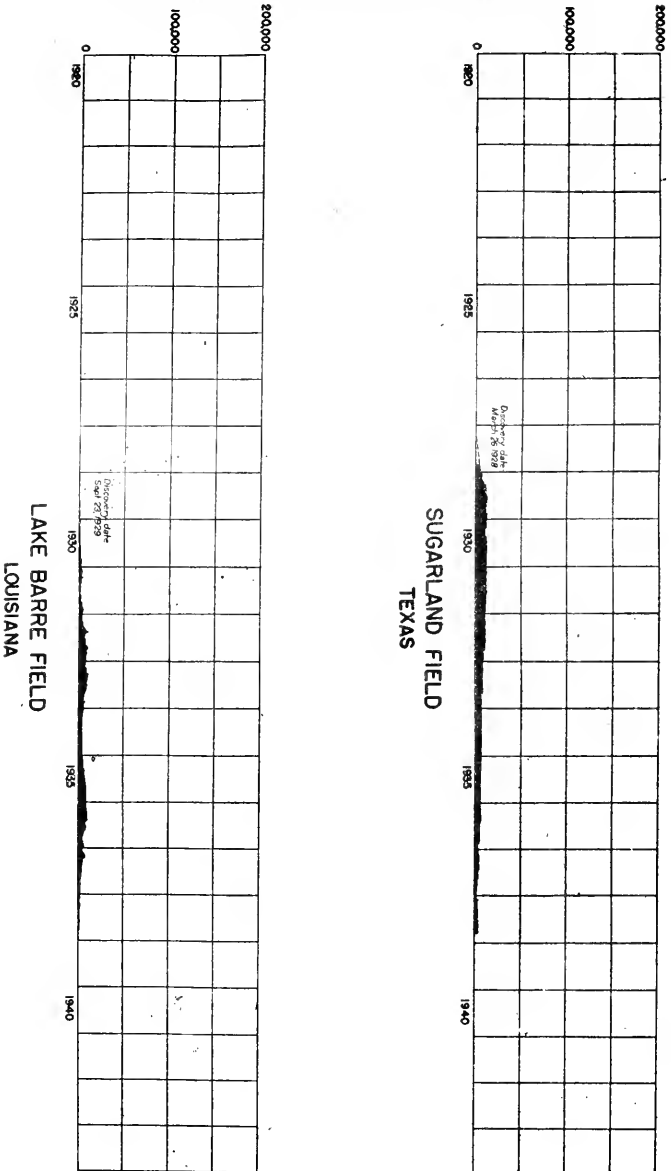
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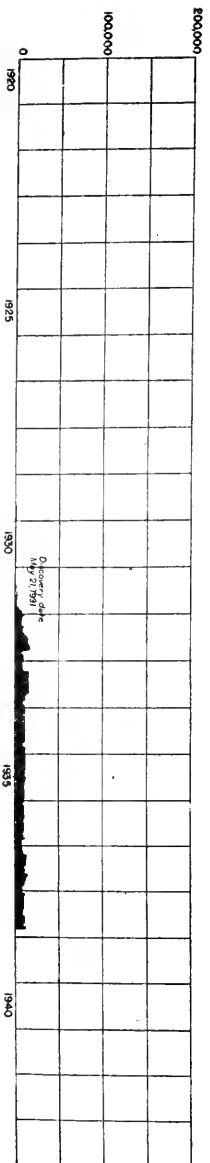
AVERAGE DAILY PRODUCTION IN BARRELS



DOMINGUEZ FIELD
CALIFORNIA

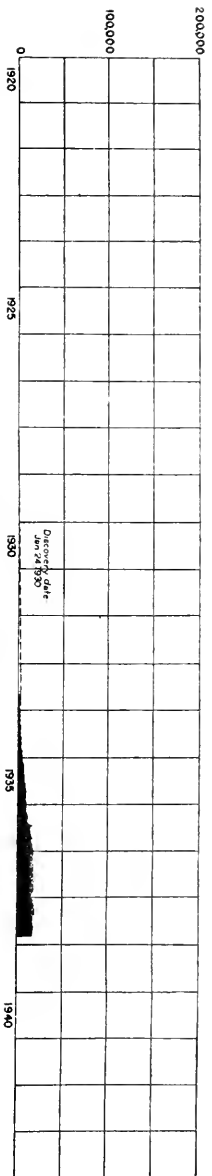


SUGARLAND FIELD
TEXAS

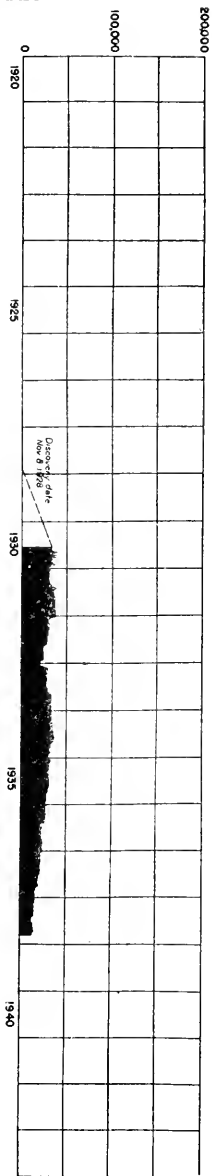


LAKE BARRE FIELD
LOUISIANA

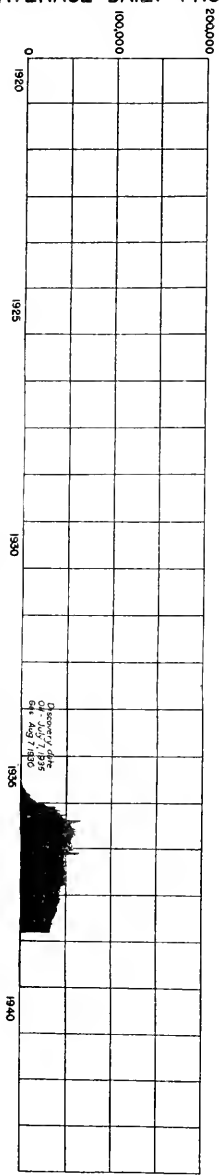
CALLOU ISLAND FIELD LOUISIANA



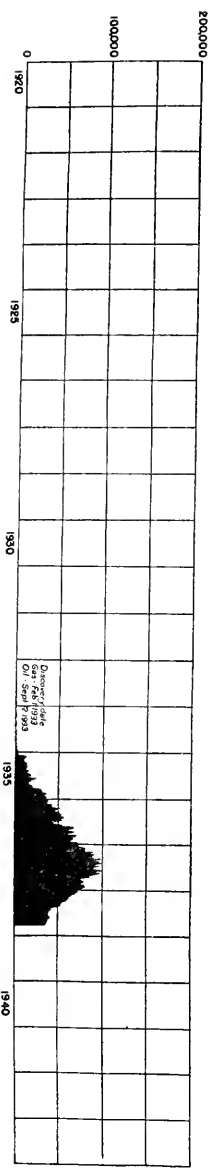
HOBBS FIELD NEW MEXICO



RODESSA FIELD CADDO PARISH LOUISIANA

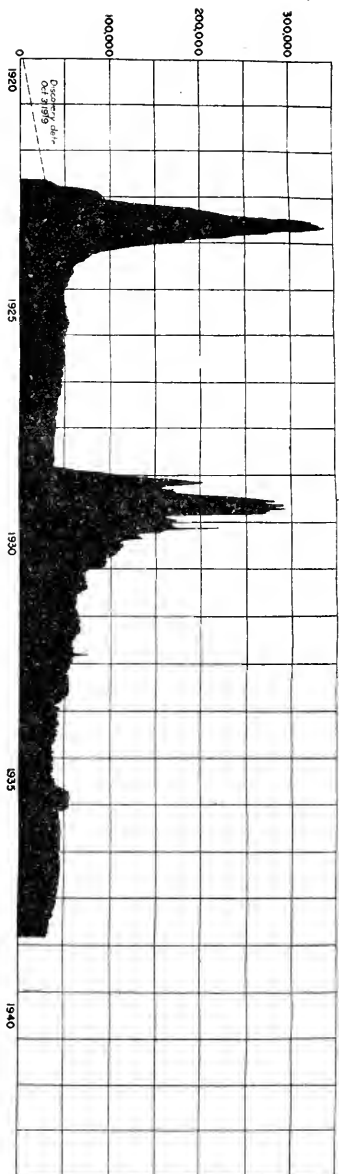


FITTS FIELD OKLAHOMA

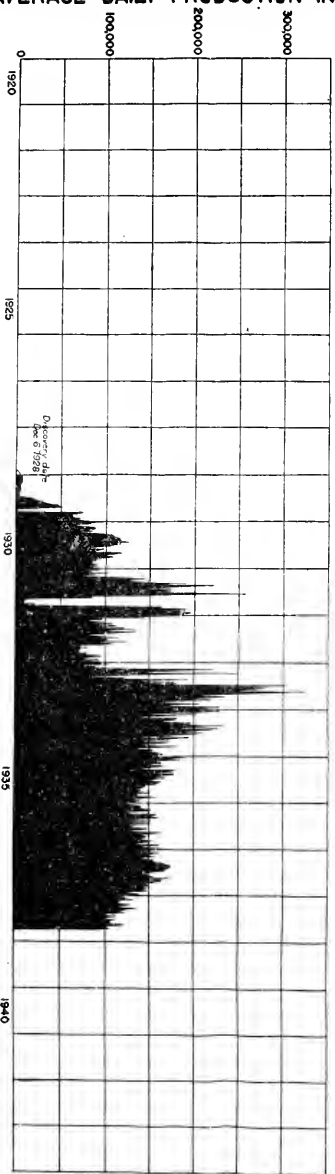


AVERAGE DAILY PRODUCTION IN BARRELS

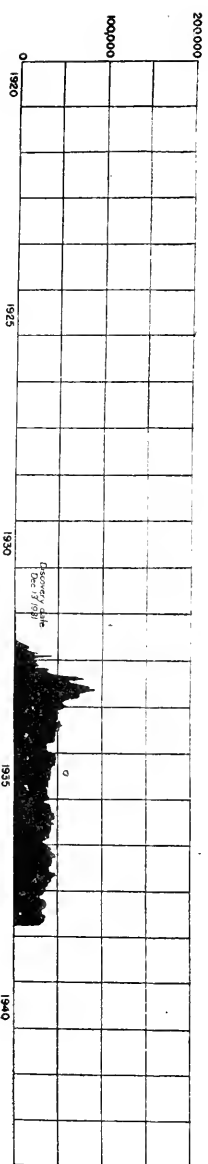
SANTA FE SPRINGS FIELD CALIFORNIA



AVERAGE DAILY PRODUCTION IN BARRELS



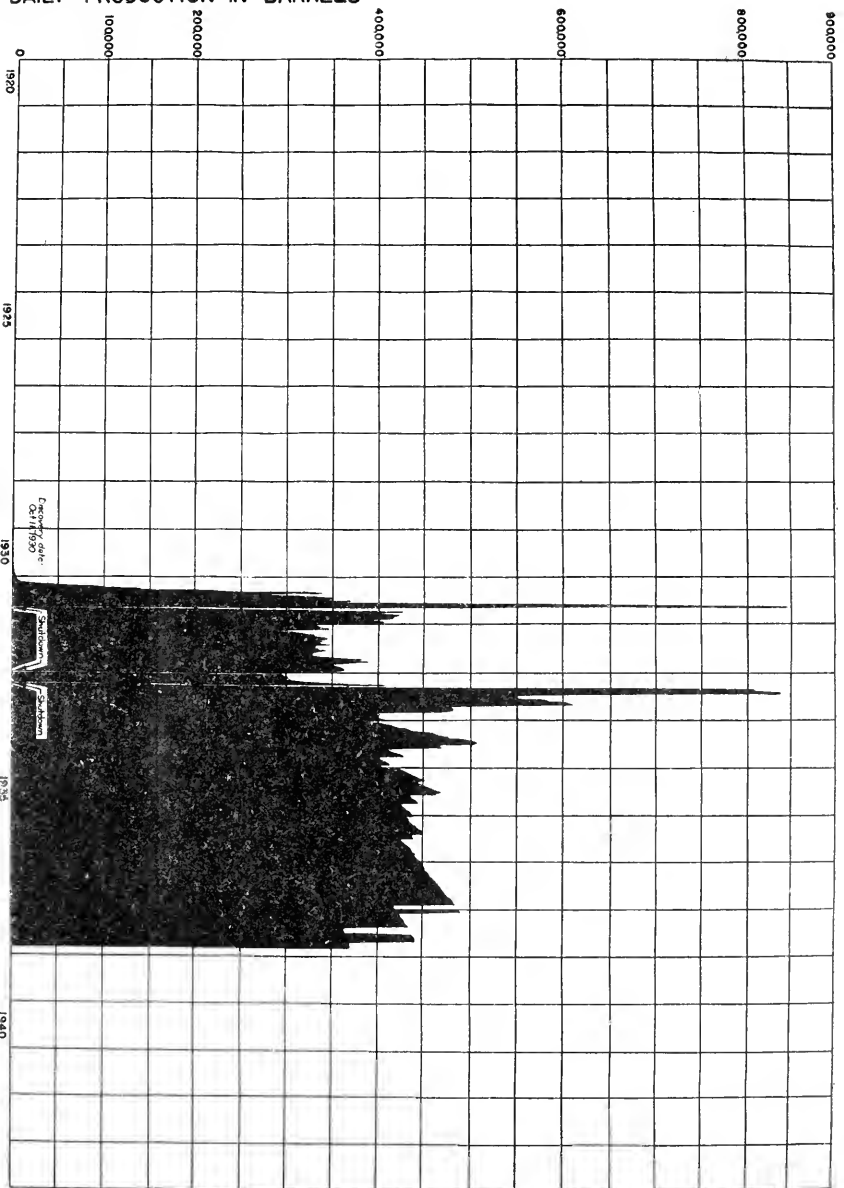
OKLAHOMA CITY FIELD OKLAHOMA



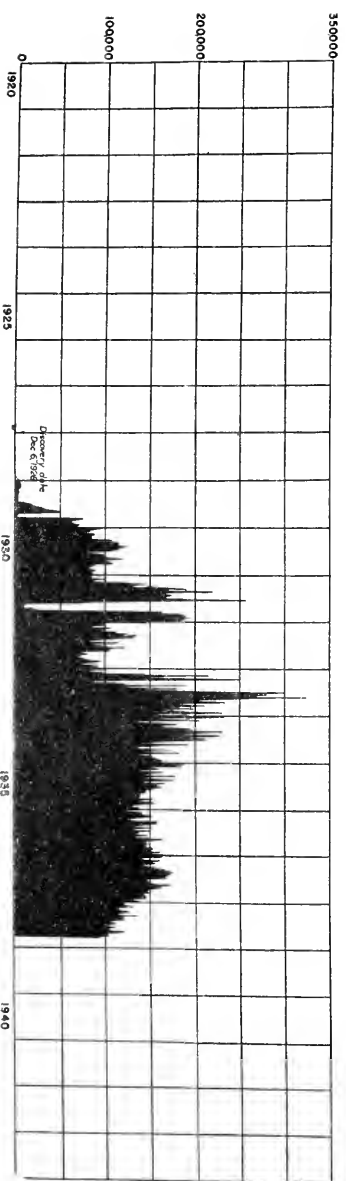
CONROE FIELD TEXAS

AVERAGE DAILY PRODUCTION IN BARRELS

EAST TEXAS FIELD TEXAS

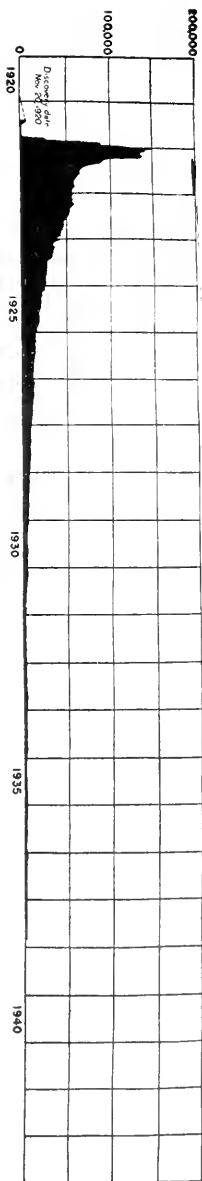


EAST TEXAS FIELD TEXAS

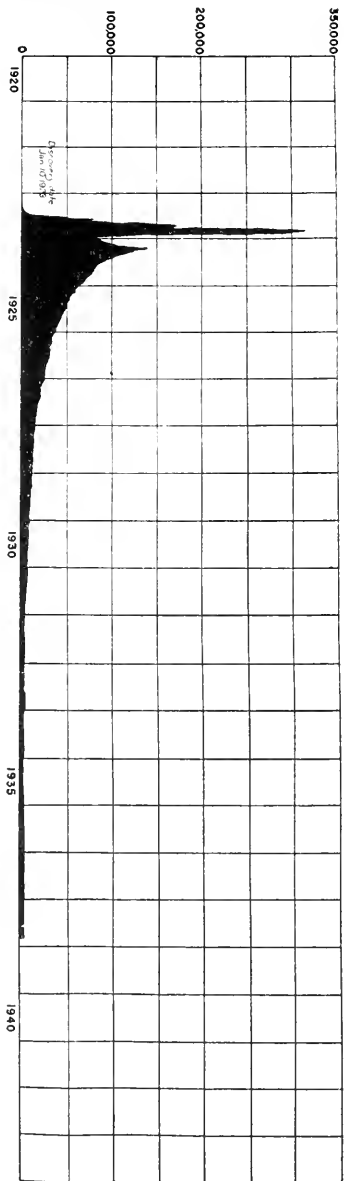


OKLAHOMA CITY FIELD OKLAHOMA

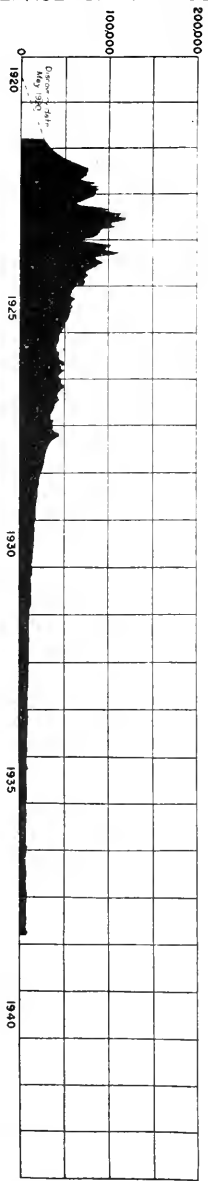
MEXIA FIELD TEXAS



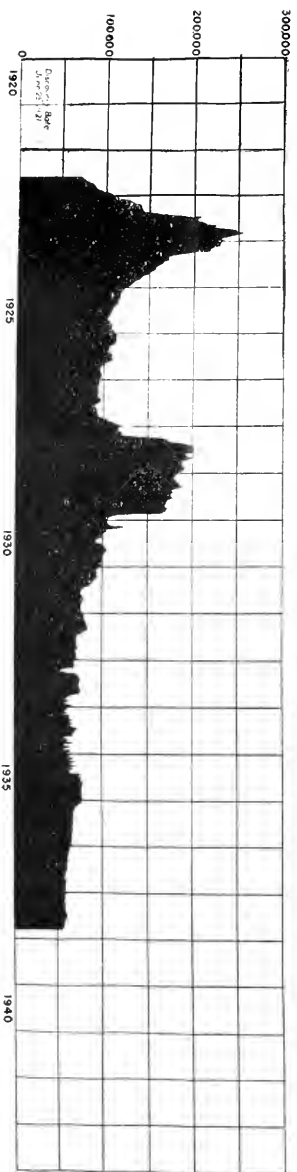
POWELL FIELD TEXAS



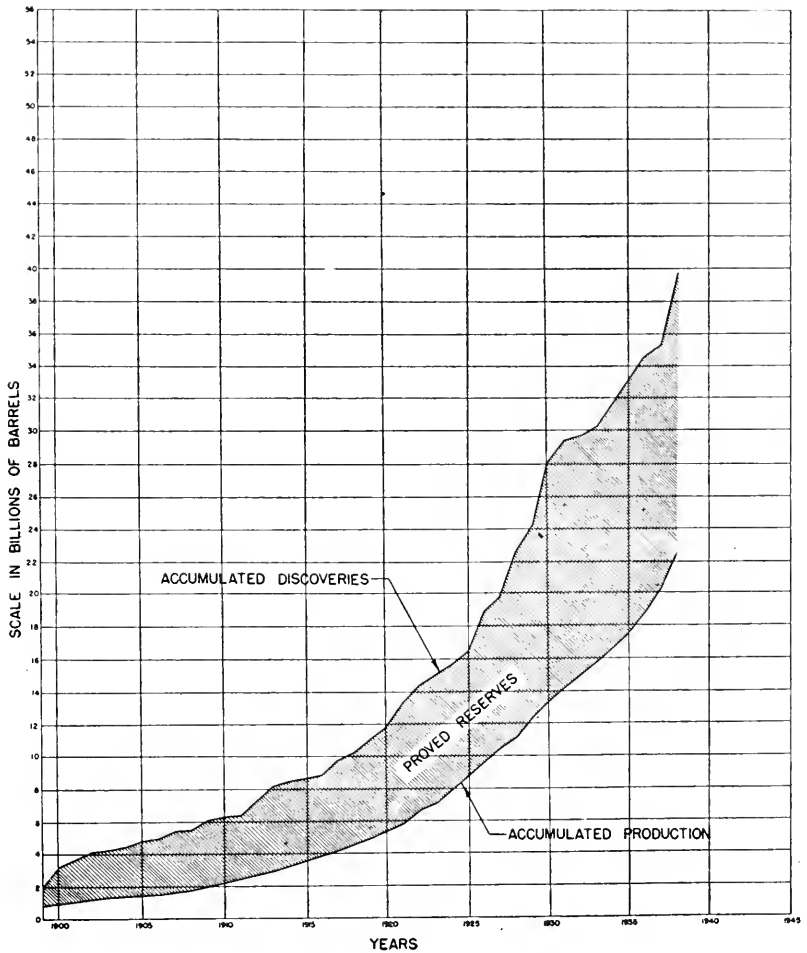
BURBANK FIELD OKLAHOMA



LONG BEACH FIELD CALIFORNIA



AVERAGE DAILY PRODUCTION IN BARRELS



SUPPLEMENTAL DATA

The following document is included at this point in connection with Mr. Gill's testimony, supra.

EXHIBIT No. 1226

MATERIAL SUBMITTED BY JOHN D. GILL OF ATLANTIC REFINING COMPANY IN RESPONSE TO QUESTIONS SUBMITTED TO HIM BY THE COMMITTEE IN AMPLIFICATION OF HIS CHARTS

DESCRIPTION OF THE COMPILATION OF THE DATA INCLUDED IN THE 24 OIL COMPANY SERIES

The attached list sets forth the make-up of the 24 oil company group for which data are presented in the various charts. Under each of the 24 companies are listed the several companies which, either by purchase or consolidation, lost their separate identity and whose facilities are now a part of one of the present day 24. The years during which the merged companies operated as separate entities and for which published statements were available are set forth in brackets beside each company. It should be noted that in the case of three or four of the smaller companies data were not available for the earliest year or so of the series. To this extent the apparent growth of invested capital of the group is fractionally overstated.

The net worth and bonds and profits of these 24 companies and their predecessors, representing as they do a large sample of the industry, have been used to suggest the trend of the employment of capital and earnings of capital in the oil business over the period 1923 to 1938. The figures have been abstracted from the stockholders' reports as published in the various Moody's Manuals of Industrial Stocks covering the period before mentioned.

The term net worth was construed to include the sums set forth on the various balance sheets for preferred stock, common stock and surplus including capital, earned, appropriated, unappropriated and appreciated surplus.

The term bonds, for the purpose of this study, was construed to include all long-term debt whether funded or not. Therefore, in addition to funded debt such items as mortgages, purchase obligations and long-term bank loans where identifiable as such have been included.

The same definitions apply to the Standard Statistics 400 Industrials series except that their tabulations include only funded debt as against all identifiable long-term debt for the 24 company series.

Make-Up of the 24 Oil Company Group

1. Amerada Corporation
2. Atlantic Refining Company
3. Barnsdall Corporation
4. Barnsdall Refining Corporation (1935-1938)
5. Consolidated Oil Corporation
6. Pierce Petroleum Corporation (1923-1929)
7. Prairie Oil & Gas Company (1923-1930)
8. Prairie Pipe Line Company (1923-1930)
9. Rio Grande Oil Company (1925-1931) 23, 24 Not available.
10. Continental Oil Company (1924-1938) 23 Not available.
11. Marland Oil Company (1923-1928)
12. Gulf Oil Corporation
13. Paragon Refining Company (1923-1929)
14. Houston Oil Company of Texas
15. Mid-Continent Petroleum Corporation
16. Ohio Oil Company
17. Illinois Pipe Line Company (1923-1929)
18. Transcontinental Oil Company (1923-1929)
19. Phillips Petroleum Company
20. Independent Oil & Gas Company (1923-1929)
21. Pure Oil Company

12. Seaboard Oil Company (Delaware)
13. Shell Union Oil Corporation
14. Skelly Oil Company
15. Socony-Vacuum Oil Company (1931-1938)
- Standard Oil Company of New York (1923-1930)
- Vacuum Oil Company (1923-1930)
- White Star Refining Co. (1928-1929) 23-27 Not available.
- White Eagle Oil & Refining Co. (1923-1929)
- General Petroleum Corporation (1923-1925)
16. Standard Oil Company (California)
- Pacific Oil Company (1923-1925)
17. Standard Oil Company (Indiana)
18. Standard Oil Company (New Jersey)
- Colonial Beacon Oil Company formerly Beacon Oil Company and Colonial Filling Stations (1924-1928) 1923 Not available.
19. Standard Oil Company (Ohio)
- Solar Refining Company (1923-1930)
20. Sun Oil Company
21. Texas Corporation
- California Petroleum Corporation (1923-1927)
- Indian Refining Company (1923-1930)
22. Texas Pacific Coal & Oil Company
23. Tide Water Associated Oil Company (1925-1938)
- Associated Oil Company (1923-1924)
- Tidewater Oil Company (1923-1924)
24. Union Oil Company of California

APPENDIX

TABLE 1.—United States consumption of petroleum products, Bureau of Mines data

[1000 bbls.]

	Total Consumption ¹	Motor Fuel	Kerosene	Gas & Fuel	Lubricants
1923.....	634, 106	175, 088	35, 536	261, 338	17, 617
24.....	668, 152	196, 586	36, 712	290, 766	18, 124
25.....	703, 883	232, 745	39, 969	307, 004	20, 581
26.....	755, 876	268, 128	38, 141	339, 572	22, 568
27.....	774, 130	305, 367	37, 491	339, 265	21, 669
28.....	831, 735	338, 881	36, 235	383, 974	23, 168
29.....	905, 019	382, 878	36, 032	415, 156	23, 609
30.....	890, 013	397, 770	34, 736	368, 531	21, 589
31.....	860, 315	407, 843	31, 358	334, 668	19, 924
32.....	804, 612	377, 791	33, 221	308, 157	16, 614
33.....	823, 966	380, 494	38, 493	323, 705	17, 152
34.....	888, 645	410, 339	44, 234	340, 731	18, 484
35.....	951, 245	434, 810	47, 645	366, 723	19, 661
36.....	1, 060, 360	481, 606	51, 428	410, 664	22, 323
37.....	1, 143, 126	519, 352	54, 972	442, 355	23, 323
38.....	1, 111, 545	521, 657	56, 351	409, 214	21, 248

¹ Indicated Domestic Demand Less Calculated Losses.

TABLE 2.—*Wholesale value of United States consumption of petroleum products*

[1000 dollars]

	Total Con- sumption	Motor Fuel	Kerosene	Gas & Fuel	Lubricants
1923.....	1,845,250	856,700	98,510	330,450	134,690
24.....	1,991,100	874,400	104,080	426,210	148,130
25.....	2,168,000	1,130,900	103,240	447,250	159,050
26.....	2,343,200	1,291,600	139,360	464,800	165,500
27.....	1,879,600	1,024,500	95,740	424,600	166,700
28.....	2,071,900	1,271,100	95,300	411,240	160,600
29.....	2,206,700	1,391,000	99,900	411,500	182,050
30.....	2,025,800	1,293,200	79,220	363,740	143,720
31.....	1,342,600	866,700	51,240	262,850	112,630
32.....	1,277,700	845,900	58,880	235,560	83,670
33.....	1,228,900	762,100	65,960	271,900	89,500
34.....	1,505,200	889,300	80,820	357,400	117,460
35.....	1,595,800	973,400	87,050	371,200	104,500
36.....	1,963,600	1,233,900	89,210	431,170	127,700
37.....	2,293,500	1,409,100	116,400	535,070	138,500
38.....	1,962,900	1,235,700	107,450	430,540	101,650

TABLE 3.—*Indexes of United States consumption of petroleum products*

[1926=100]

	Total Con- sumption	Motor Fuel	Kerosene	Gas & Fuel	Lubricants
1923.....	83.9	95.3	93.3	77.0	78.1
24.....	88.4	73.3	96.3	85.6	80.3
25.....	93.1	80.8	104.8	90.4	91.2
26.....	100.	100.	100.	100.	100.
27.....	102.5	113.9	98.2	99.9	96.
28.....	110.	126.3	95.	113.	102.7
29.....	119.7	142.8	94.5	122.2	104.7
30.....	117.7	143.4	91.1	108.5	95.6
31.....	113.8	152.1	82.2	98.6	88.3
32.....	106.5	139.9	87.1	90.8	73.6
33.....	109.	141.9	101.9	95.3	76.0
34.....	117.5	153.1	116.	100.3	81.9
35.....	126.	162.1	125.	108.	87.1
36.....	140.4	179.6	135.	121.	98.9
37.....	151.5	193.7	144.2	130.3	104.5
38.....	147.	194.5	147.8	120.5	94.1

TABLE 4.—*Indexes of wholesale value of U. S. consumption of petroleum products*

[1926=100]

	Total Con- sumption	Motor Fuel	Kerosene	Gas & Fuel	Lubricants
1923.....	78.8	66.3	70.7	71.1	81.4
24.....	85.0	67.7	74.6	91.8	89.5
25.....	92.5	87.5	73.0	96.2	96.0
26.....	100	100	100	100	100
27.....	80.2	79.3	68.7	91.4	94.7
28.....	88.4	98.4	68.4	88.5	97.0
29.....	94.0	107.7	71.7	88.6	110
30.....	86.4	100.1	56.9	78.3	86.8
31.....	57.2	67.1	36.8	56.6	68.1
32.....	54.5	65.7	42.3	50.7	50.6
33.....	52.4	59.0	47.3	58.5	54.1
34.....	64.2	68.8	58.0	76.9	70.9
35.....	68.1	75.3	62.5	79.1	63.2
36.....	83.7	95.5	64.0	92.8	77.1
37.....	97.5	109.0	83.5	115.1	83.7
38.....	83.7	95.6	77.1	93.9	61.4

TABLE 5.—*Volume and value of domestic consumption*

[Barrels and dollars in millions]

	Domestic Consumption	Wholesale Value at Current Prices	Wholesale Value at 1926 Prices	Difference
1927	774	1,880	2,466	586
28	832	2,072	2,628	556
29	905	2,207	2,880	673
30	890	2,026	2,920	894
31	860	1,343	2,778	1,434
32	805	1,277	2,590	1,313
33	824	1,229	2,630	1,391
34	889	1,505	2,850	1,345
35	951	1,596	3,030	1,434
36	1,060	1,964	3,380	1,416
37	1,143	2,293	3,630	1,337
38	1,112	1,961	3,585	1,625

TABLE 6.—*Comparison of price indexes*

	Refinery value of products				Wholesale Com. ¹ Price Index	
	\$ Per Bbl.	1929=100	Variation from W. C. P. I.		1926=100	1929=100
			1929=100	\$ Per Bbl.		
1899	2.17	87.8	+60.2	3.96	52.2	54.8
1904	2.34	94.7	+51.3	3.74	59.7	62.6
09	1.81	73.3	+3.4	2.55	67.6	70.9
14	1.96	79.4	+11.2	2.75	68.1	71.4
19	4.30	174.1	+19.7	2.96	138.6	145.4
23	2.87	116.2	+10.0	2.72	100.6	105.6
24	2.92	118.2	+14.9	2.84	98.1	102.9
25	3.05	123.5	+13.7	2.81	103.5	108.6
26	3.12	126.3	+20.4	2.97	100.0	104.9
27	2.40	97.2	-2.9	2.40	95.4	100.1
28	2.52	102.0	+0.5	2.48	96.7	101.5
29	2.47	100.0		2.47	95.3	100.0
30	2.29	92.7	+2.2	2.52	86.4	90.7
31	1.59	64.4	-15.9	2.08	73.0	76.6
32	1.61	65.2	-4.3	2.36	64.9	68.1
33	1.52	61.5	-11.1	2.20	66.0	69.2
34	1.73	70.0	-11.1	2.20	75.0	78.7
35	1.72	69.6	-17.0	2.05	80.0	83.9
36	1.89	76.5	-9.8	2.23	80.8	84.8
37	2.06	83.4	-8.0	2.27	86.3	90.6
38	1.80	72.9	-11.6	2.18	78.6	82.5

¹ U. S. Bureau of Labor Statistics.TABLE 7.—*Comparison of price indexes*

	Refinery value of products			W. C. P. I. 1926=100
	1926=100	Variation from W. C. P. I.		
		1926=100	\$ Per Bbl.	
1899	69.6	+33.3	4.16	52.2
1904	75.0	+25.6	3.92	59.7
09	58.0	-14.2	2.68	67.6
14	62.8	-7.8	2.88	68.1
19	137.8	-0.6	3.10	138.6
23	92.0	-8.6	2.85	100.6
24	93.6	-4.6	2.98	98.1
25	97.8	-5.5	2.95	103.5
26	100.0	0	3.12	100.0
27	76.9	-19.4	2.51	95.4
28	80.8	-16.4	2.61	96.7
29	79.2	-16.9	2.59	95.3
30	73.4	-15.0	2.65	86.4
31	51.0	-30.1	2.18	73.0
32	51.6	-20.5	2.48	64.9
33	48.7	-26.2	2.30	66.0
34	55.4	-26.1	2.30	75.0
35	55.1	-31.1	2.15	80.0
36	60.6	-25.0	2.34	80.8
37	66.0	-23.5	2.39	86.3
38	57.7	-26.6	2.29	78.6

TABLE 8.—*Comparison of price indexes*

	Refinery value of products			W. G. P. I. 1923=100
	1923=100	Variation from W. C. P. I.		
		1923=100	\$ Per Bbl.	
1899	75.6	+45.7	4.18	51.9
1904	81.5	+37.4	3.94	59.3
09	63.1	-7.9	2.64	68.5
14	68.3	+1.6	2.92	67.2
19	149.8	+8.7	3.12	137.8
23	100.0	0	2.87	100.0
24	101.7	+4.3	2.99	97.5
25	106.3	+3.3	2.96	102.9
26	108.7	+9.4	3.14	99.4
27	83.6	-11.8	2.53	94.8
28	87.8	-8.6	2.62	96.1
29	86.1	-10.8	2.56	96.5
30	79.8	-7.1	2.67	85.9
31	55.4	-23.7	2.19	72.6
32	56.1	-13.0	2.50	64.5
33	53.0	-19.2	2.32	65.6
34	60.3	-19.2	2.32	74.6
35	59.9	-24.7	2.16	79.5
36	65.8	-18.1	2.35	80.3
37	71.2	-17.0	2.38	85.8
38	62.7	-19.7	2.30	78.1

TABLE 9.—*Comparison of price indexes*

	Refinery value of products		W. C. P. I. excl. farm & food ¹ 1926=100	W. C. P. I. ¹ 1926=100
	\$ Per Bbl.	1926=100		
1923	2.87	92.0	104.3	100.6
24	2.92	93.6	99.7	98.1
25	3.05	97.8	102.6	103.5
26	3.12	100.0	100.0	100.0
27	2.40	76.9	94.0	95.4
28	2.52	80.8	92.9	96.7
29	2.47	79.2	91.6	95.3
30	2.29	73.4	85.2	86.4
31	1.59	51.0	75.0	73.0
32	1.61	51.6	70.4	64.9
33	1.52	48.7	71.2	66.0
34	1.73	55.4	78.4	75.0
35	1.72	55.1	77.9	80.0
36	1.89	60.6	79.6	80.8
37	2.06	66.0	85.3	86.3
38	1.80	57.7	81.8	78.6

¹ U. S. Bureau of Labor Statistics.TABLE 10.—*Crude production, consumption of petroleum products, motor fuel production and domestic motor fuel consumption in the United States*

[1,000 bbls.]

	Crude production		Domestic consumption of petroleum products		Production of motor fuel		Domestic consumption of motor fuel	
	Barrels	Index	Barrels	Index	Barrels	Index	Barrels	Index
1923	732,407	100.0	634,106	100.0	181,103	100.0	175,088	100.0
24	713,940	97.4	668,152	105.5	215,401	118.8	196,586	112.0
25	763,743	104.2	703,883	111.0	259,601	143.2	232,745	133.0
26	770,874	105.3	755,876	119.0	299,734	164.8	268,128	153.2
27	901,129	123.0	774,130	122.0	330,435	182.5	305,367	174.5
28	901,474	123.1	831,735	131.3	380,990	210.0	338,881	193.5
29	1,007,323	137.5	905,019	142.6	439,393	242.5	382,878	219.0
30	898,011	122.7	890,013	140.5	440,728	243.0	397,770	227.2
31	861,081	116.2	860,315	135.5	437,453	241.2	407,843	233.0
32	785,159	107.2	804,612	126.8	399,712	220.8	377,791	216.0
33	905,656	123.6	823,966	129.8	407,932	225.0	380,949	217.2
34	908,065	124.0	888,645	140.0	423,801	234.0	410,339	234.5
35	996,596	136.1	951,245	150.0	468,021	258.3	434,810	248.5
36	1,099,687	150.1	1,060,360	167.4	516,266	285.0	481,606	275.0
37	1,279,160	174.7	1,143,126	180.0	571,727	315.2	519,352	297.0
38	1,213,254	165.6	1,111,545	175.5	567,908	313.2	521,657	298.0

TABLE 11.—*Manufacturing and refining activity*

	Manufacturing production (Federal Reserve Board)		Refining activity crude run to stills	
	Index of production		Monthly average 1,000 barrels	Index 1923=100
	1923/25=100	1923=100		
1923	101	100	48,436	100.0
24	94	93	53,643	110.7
25	105	104	61,660	127.3
26	108	107	64,939	134.1
27	106	105	69,069	142.6
28	112	111	76,108	157.1
29	119	118	82,309	169.9
30	95	94	77,287	159.6
31	80	79	74,468	153.9
32	63	62	68,333	141.1
33	75	74	71,771	148.2
34	78	77	74,442	154.1
35	90	89	80,483	166.2
36	105	104	89,011	183.8
37	109	108	98,620	203.6
38	84	83	97,085	204.0

TABLE 12.—*Investment and service oil industry*

	Crude runs to stills		Net worth and long-term debt, 24 oil companies			
	000's bbls.	1923=100	1927=100	000's \$	1923=100	1927=100
1923	581,238	100.0	70.1	4,871,561	100.0	78.0
24	643,719	110.7	77.7	5,193,853	106.6	83.1
25	739,920	127.3	89.3	5,494,221	112.8	87.9
26	779,264	134.1	94.0	6,096,791	125.2	97.6
27	828,835	142.6	100.0	6,247,785	128.2	100.0
28	913,295	157.1	110.2	6,708,527	137.7	107.4
29	987,708	169.9	119.2	7,452,975	153.0	119.3
30	927,447	159.6	111.9	7,545,888	154.9	120.8
31	894,608	153.9	107.9	7,043,263	144.6	112.7
32	819,997	141.1	98.9	6,636,772	136.2	106.2
33	861,254	148.2	103.9	6,464,160	132.7	103.5
34	895,636	154.1	108.0	6,039,504	124.0	96.7
35	965,790	166.2	116.5	6,047,383	124.1	96.8
36	1,068,570	183.8	128.9	6,183,240	126.9	99.0
37	1,183,440	203.6	142.8	6,675,255	137.0	108.8
38	1,165,015	200.4	140.6	6,855,448	140.7	109.7

TABLE 13.—*Investment and service comparisons oil industry—all industry*

	Net worth and long term debt				Crude runs to stills		F. R. B. Index of Mfg. Pr.
	24 Oil Companies		400 Industrials				
	Millions \$	1927=100	Millions \$	1927=100	000's Bbls.	1927=100	1927=100
1927-----	6, 248	100. 0	24, 566	100. 0	828, 835	100. 0	100. 0
28-----	6, 709	107. 4	26, 025	105. 9	913, 295	110. 1	105. 7
29-----	7, 453	119. 3	28, 100	114. 4	987, 708	119. 2	112. 3
30-----	7, 546	120. 8	28, 695	116. 8	927, 447	111. 9	89. 6
31-----	7, 043	112. 7	27, 050	110. 1	894, 608	107. 9	75. 5
32-----	6, 637	106. 2	25, 166	102. 4	819, 997	98. 9	59. 4
33-----	6, 464	103. 5	24, 651	100. 3	861, 254	103. 9	70. 8
34-----	6, 040	96. 7	23, 923	97. 4	895, 636	108. 1	73. 6
35-----	6, 047	96. 8	24, 029	97. 8	965, 790	116. 5	84. 9
36-----	6, 183	99. 0	24, 445	99. 5	1, 068, 570	128. 9	99. 1
37-----	6, 675	106. 8	25, 439	103. 6	1, 183, 440	142. 8	102. 8
38-----	6, 855	109. 7	25, 745	104. 8	1, 165, 015	140. 6	79. 2

TABLE 14.—Rate of return on net worth

Year	Oil industry	Mfg. industry	All industry	Year	Oil industry	Mfg. industry	All industry
1923.....	6.28	10.0	7.7	1931.....	-1.07	2.5	2.4
1st qtr.....	5.12	10.52	7.93	1st qtr.....	6.7	3.49	2.96
2nd.....	7.10	9.29	7.32	2nd.....	-4.8	3.68	3.15
3rd.....	8.22	9.55	7.07	3rd.....	-1.9	2.59	2.43
4th.....	4.23	10.60	8.15	4th.....	-7.1	0.24	1.08
1924.....	7.39	8.9	7.3	1932.....	1.09	-0.3	0.3
1st qtr.....	5.66	11.45	8.66	1st qtr.....	0.77	1.94	0.66
2nd.....	8.52	7.52	6.28	2nd.....	1.27	1.24	0.39
3rd.....	9.37	7.02	6.10	3rd.....	1.48	-1.45	0.13
4th.....	5.66	9.64	7.93	4th.....	0.84	-2.93	0.11
1925.....	10.81	10.7	9.1	1933.....	1.46	2.7	2.6
1st qtr.....	4.67	9.12	8.30	1st qtr.....	0.87	-1.54	-0.20
2nd.....	12.08	9.76	8.65	2nd.....	1.36	3.08	2.85
3rd.....	14.80	10.40	9.25	3rd.....	2.16	5.84	4.53
4th.....	8.34	11.80	10.19	4th.....	1.41	3.42	3.23
1926.....	10.63	11.0	9.3	1934.....	2.90	4.3	3.5
1st qtr.....	7.08	10.87	9.10	1st qtr.....	1.80	4.62	3.69
2nd.....	12.50	10.11	8.72	2nd.....	3.40	5.94	4.38
3rd.....	15.20	11.35	9.60	3rd.....	4.40	4.01	3.21
4th.....	8.18	11.65	9.77	4th.....	2.30	2.75	2.74
1927.....	5.01	8.8	8.5	1935.....	5.20	6.6	5.0
1st qtr.....	4.12	9.24	8.87	1st qtr.....	3.46	5.26	3.92
2nd.....	5.15	8.85	8.60	2nd.....	5.55	5.88	4.39
3rd.....	6.70	8.70	8.42	3rd.....	7.36	5.45	4.30
4th.....	3.76	8.40	8.22	4th.....	4.47	9.80	7.41
1928.....	9.39	10.7	10.1	1936.....	7.5	10.2	7.3
1st qtr.....	5.77	8.68	9.19	1st qtr.....	5.30	7.96	5.42
2nd.....	9.90	9.00	9.36	2nd.....	7.50	10.15	6.92
3rd.....	14.15	10.10	10.36	3rd.....	10.60	8.74	6.69
4th.....	8.19	15.10	11.41	4th.....	6.60	13.64	10.15
1929.....	9.67	12.6	10.7	1937.....	10.0	10.6	7.2
1st qtr.....	6.64	12.85	10.65	1st qtr.....	7.90	10.44	7.38
2nd.....	10.55	13.47	11.02	2nd.....	11.10	11.45	7.67
3rd.....	13.65	13.53	11.15	3rd.....	12.80	9.36	7.24
4th.....	7.72	11.60	9.97	4th.....	8.20	9.36	6.49
1930.....	4.35	6.3	5.7	1938.....	4.9	5.0	3.8
1st qtr.....	3.30	8.22	7.31	1st qtr.....	5.7	4.12	2.90
2nd.....	5.04	7.34	6.23	2nd.....	5.3	3.86	2.85
3rd.....	6.14	5.56	5.08	3rd.....	5.4	3.47	3.17
4th.....	2.94	4.06	4.15	4th.....	2.1	5.51	6.28

TABLE 15.—Comparison of trends of dollar profits and profits per unit of performance

	24 Oil Co.'s Profit Millions \$	400 Co.'s Profit Millions \$	Index of Profit Per Unit of Performance	
			24 Oil Co.'s	400 Co.'s
1927.....	264.8	1,988	49.7	72.9
28.....	557.7	2,643	94.9	91.6
29.....	635.9	3,065	100.0	100.0
30.....	295.2	1,743	49.4	71.4
31.....	-96.0	623	-16.6	30.4
32.....	53.9	61	10.2	3.7
33.....	77.9	627	14.1	32.6
34.....	152.6	950	26.6	47.3
35.....	251.9	1,427	40.5	61.5
36.....	410.0	2,142	59.6	79.1
37.....	562.2	2,412	73.8	86.1
38.....	290.5	1,198	36.7	55.2

TABLE 16.—Assuming equivalent profit per unit of output for manufacturing & oil industries in 1929—Profit of 24 oil was short or long in other years the following

	24 Oils Reported Profit	24 Oils Profit Nec- essary to Keep Up With Unit Profits All Industry	24 Oils Addi- tional Profit Needed		24 Oils Reported Profit	24 Oils Profit Nec- essary to Keep Up With Unit Profits All Industry	24 Oils Addi- tional Profit Needed
1927.....	\$264.8	\$388.5	\$123.7	1934.....	\$152.6	\$271.3	\$118.7
28.....	557.7	538.2	-19.5	35.....	251.9	382.6	130.7
29.....	635.9	635.9	-----	36.....	410.0	544.1	134.1
30.....	295.2	426.6	131.4	37.....	562.2	656.1	93.9
31.....	-96.0	175.2	271.2	38.....	290.5	415.1	124.6
32.....	53.9	19.6	-34.3				
33.....	77.9	180.1	102.2	12 Year Total	\$3456.6	\$4633.3	\$1176.7

SOURCES AND METHODS EMPLOYED IN THE DERIVATION OF THE FIGURES OF COMPENSATION PAID TO OIL INDUSTRY EMPLOYEES

I. CRUDE PRODUCING DIVISION

Year 1937

Wages and salaries paid to producing division employees in the year 1937 were based upon the 1935 Census of Business report for the Petroleum Industry. This report, prepared by the Bureau of Mines, covers the employment of wage earners, administrative, supervisory, technical and clerical employees engaged in the field work involved in the operation and maintenance of the country's oil wells. Correspondence with Mr. G. R. Hopkins revealed that the above census included all engaged in production and drilling, *except contract drilling*. A summary of the data included in the Census report follows.

Census of Petroleum Producing Industry—1935¹

	Number	Compensa- tion \$1,000's
Salaried Officers.....	788	\$ 1,668
Supervisory Employees ²	3,410	7,995
Other Salaried Employees ³	3,740	5,073
Total Salaried.....	7,938	14,736
Wage Earners.....	93,450	126,703
Total Engaged.....	101,388	141,439

¹ Salaried Employees as of about 12/14/35; wage earners average for the year.

² Partial totals—many companies include the major part of officers' salaries in central-office expense.

³ Managers, superintendents, geologists, engineers, and other responsible administrative employees.

⁴ Chiefly clerks and stenographers.

The above base figures were brought forward to 1937 by application of the changes indicated between 1935 and 1937 by the indexes of employment and payrolls in the Crude Petroleum Producing industry prepared and published by the Division of Employment Statistics of the Bureau of Labor Statistics, Department of Labor.

Employment and payroll indexes—crude petroleum producing

[1929=100]

	Employ- ment	Payrolls		Employ- ment	Payrolls
1929.....	100.0	100.0	% Change:		
1935.....	74.9	57.9	1937/1935.....	+2.1	+17.8
1937.....	76.5	68.2	1935-1939.....	-25.1	-42.1

A 2.1% increase in employment and a 17.8% increase in payrolls in crude petroleum producing, between 1935 and 1937, according to the Bureau of Labor Statistics' indexes, raises the 1935 total employment figure of 101,388 to 103,517 in 1937, and the 1935 total compensation of crude producing employees to \$166,615,000.

Year 1929

The method employed for estimating the number of persons engaged and the dollars of compensation received in crude petroleum producing in 1929, is similar to that employed in estimating corresponding data for the year 1937; i. e., the change indicated by Bureau of Labor Statistics' indexes of employment and payrolls in the crude producing division, from 1929 to 1935, applied to the 1935 Census of Business Report on the Petroleum Producing Industry. This method produces the following result.

	Employment	Payrolls \$1,000's
Reported Year 1935.....	101,388	141,439
Estimated Year 1929.....	135,364	244,281
% Change 1935/1929.....	-25.1	-42.1

Year 1923

Estimates of crude producing employment and payrolls for the year 1923 were based primarily on data reported in the 1919 Census of Mines and Quarries, Petroleum and Natural Gas section. These data are summarized below:

Census of Mines and Quarries—Petroleum and natural gas—1919

	Petroleum		Petroleum & Natural Gas		Petroleum, Natural Gas & Nat. Gasoline		Combined Data for 3 Groups	
	Number	Compensation \$1000's	Number	Compensation \$1000's	Number	Compensation \$1000's	Number	Compensation \$1000's
Salaried Officers.....	1,159	3,341	497	1,841	286	1,583	1,942	6,765
Supt. & Mgrs.....	2,013	4,464	1,172	3,182	866	2,501	4,051	10,147
Technical Emp.....	184	416	402	796	190	513	776	1,725
Clerks.....	3,497	3,290	2,441	3,821	2,734	3,589	8,672	10,700
Wage Earners.....	29,430	44,581	27,436	41,189	28,972	39,592	85,898	125,362
Total.....	36,343	56,092	31,948	50,829	33,048	47,778	101,339	154,699

On the basis of the above Census data, the crude petroleum producing division in 1919 employed 101,339 persons and paid \$154,699,000 in compensation. To bring these data forward to 1923, several assumptions were made: first, that the number of persons per well in 1923 remained unchanged from the number indicated in 1919; second, that the average earnings per employee increased between 1919 and 1923 in the same proportion as the increase in average earnings of employed workers in the manufacturing, transportation and mining industries reported by Paul H. Douglas' "Real Wages in the United States—1790–1926," Table 176, page 468, that is that they increased 7.6%. The results of these estimates are presented in detail below.

Crude petroleum producing

	Number of Employees	Compensation \$1,000's	Average Annual Earnings, Dollars	Number of Producing Wells as of 12/31	Average Number of Wells per Employee
Year 1919 ¹	101,339	154,699	1,527	228,084	2.25
Year 1923 ²	³ 128,933	⁴ 211,837	⁵ 1,643	290,100	⁶ 2.25

¹ Official reports.² Estimates based on 1919 source material.³ Calculation based on 290,100 wells and an average of 2.25 wells per employee.⁴ Calculation based on the estimated 128,933 persons engaged and the \$1,643 estimated average annual earnings.⁵ Indicated increase of 7.6% in average annual earnings based on Paul H. Douglas' "Real Wages in the United States—1790-1926," table 176, page 468.⁶ Assumed number of wells per employee unchanged from 1919.

II. REFINING DIVISION

Source of employment and payrolls in the refining division in all three years, 1937, 1929, 1923, is the Census of Manufactures for each of these years. The reported data are summarized below.

Census of Manufactures—Petroleum refining

	Year 1937		Year 1929		Year 1923	
	Number	Compensation \$1,000's	Number	Compensation \$1,000's	Number	Compensation \$1,000's
Salaried Officers ¹ & Employees.....	15,268	36,393	13,797	33,578	16,042	34,568
Wage Earners.....	83,182	140,415	80,596	131,177	66,717	103,834
Total.....	98,450	176,808	94,393	164,755	82,759	138,402

¹ No data for employees of central administrative offices are included.

III. PIPE LINE

Source of employment and payroll data for the pipe line division of the industry is the I. C. C. report "Statistics of Oil Pipe Lines, 1921-1937", table 18, page 29, which shows number of employees and their compensation for pipe lines reporting to the I. C. C. Of the total mileage of all pipe lines, reporting carriers are reported to have had 82.3% in 1924, 81% in 1931 (80.8% in 1926) and 81.8% in 1936. To raise the data of employment and compensation of reporting carriers to a 100% basis, i. e., to include those lines not required to report to the Commission because of intrastate activity, the percentages of total mileage represented by reporting carriers were used as adjustment figures. The table below shows the results obtained.

I. C. C. Report—Oil pipe lines

	Year 1937		Year 1929		Year 1923	
	Reported	Adjusted	Reported	Adjusted	Reported	Adjusted
Total employees.....	24,168	29,560	23,457	28,963	24,055	29,221
Tot. Comp.—\$1000's.....	45,055	55,106	46,251	57,107	35,401	43,004
Mileage of reporting lines as % of Total mileage—all carriers.....	¹ 81.76%	-----	² 80.99%	-----	³ 82.32%	-----

¹ 1936.² 1931.³ 1924.

IV. MARINE

Estimates of employment and payrolls on American oil tankers have as their base data from the following sources:

1. Number of Tankers of 1000 gross tons or over in operation—reports of the U. S. Maritime Commission and its predecessor, U. S. Shipping Board.

2. Average payroll per tanker—Bureau of Labor Statistics reports "Wage Structure in Deep Sea Shipping, 1935," "Wages of Seamen—1927, 1928"; Paul H. Douglas "Real Wages in the U. S.—1790-1926", section on wages of A. B. seamen.

Results obtained were as follows:

Marine division

	Average Number of Tankers in Operation	Estimated Average Annual Payroll per Tanker	Total Payroll (Number of Tankers X Avg. Payroll)	Number of Employees (Avg. of 40 Employ- ees X # of Tankers)
1937.....	346	\$48,385	\$16,741,000	13,840
1929.....	333	51,900	17,283,000	13,320
1923.....	300	44,380	13,314,000	12,000

¹ Estimated.

V. CHAIN SERVICE STATION

Year 1937

Sources:

1. Retail Census of Distribution for 1930, 1933, 1935 which reported the following data on chain filling station operation.

	1935	1933	1930 ¹
# of Chain filling stations.....	19,575	36,026	30,038
# of Employees ²	57,130	³ 79,346	64,950
Persons per Station ²	2.92	³ 2.20	2.16
\$1,000's of Compensation ²	69,022	86,382	81,239
Average per Employee.....	\$1,208	\$1,090	\$1,251

¹ Data applicable to year 1929.

² Full and part-time reported.

³ Full-time reported, part-time estimated.

2. Statement of H. H. Anderson (data for 18 major companies), "The Petroleum Industry—Employment and Working Conditions," presented before the T. N. E. C., and dated June 6, 1939. Table 4-f of this statement showed the change in average weekly wages of retail service station employees between 1929 and 1938 to be as follows:

Average weekly wage of retail service station employees—18 major companies

	Dollars		Dollars
May 1938.....	26.64	May 1933.....	24.35
May 1936.....	26.33	May 1929.....	29.57
May 1934.....	23.94		

Method: It was estimated that the operation of the Iowa Plan had reduced the number of employees at chain service stations to 17,140 by 1937. Average earnings of service station employees are indicated to have been about \$1,236 in 1937, as compared to \$1,130 (for full-time employees in chain service stations) in 1933—an increase of 9.4% which was based on the increase in average weekly earnings of retail service station employees for the 18 major companies covered in the "Anderson report" between May 1933 and May 1938. Combining the foregoing estimates of number of employees and average annual earnings produces the following result.

Estimates for year 1937

Number of Employees at Chain Service Stations.....	17, 140
Average Annual Earnings.....	\$1, 236
Total Compensation (\$1,000's).....	\$21, 185

Year 1929

Source: Number engaged and dollars of payroll reported by the 1930 Retail Census of Distribution for chain service stations, which apply to the year 1929.

Retail census of distribution—1930—chain filling stations

Number Engaged ¹	64, 950
Compensation ¹ (\$1000's).....	81, 239

¹ Full-time and part-time.

Year 1923

Sources:

1. F. T. C. report "Prices, Profits, and Competition—Petroleum Industry," 1928.

2. "Report on Marketing Facilities * * *" of the Petroleum Administrative Board to the Cole Committee, dated 3/20/35.

3. Gasoline consumption and service station growth in state of Ohio, 1922–1932—chart prepared by Edward Reiser, Ohio State Petroleum Committee.

Method: According to source 1., above, in 1925 41 large Standard and independent companies operated 12,644 service stations. This same group sold over 83% of the total domestic consumption, approximately 19.3% of which was sold direct to the consumer through their own service stations (see pages 55 and 56 of the F. T. C. report). The reported 1925 data and the derived 1923 data on outlets and volumes are tabulated below.

Data for 41 standard & independent companies

	Number of Service Stations	Volume of Gasoline Sold Through Company- Operated Stations (1000 Gallons)	Daily Average Sales per Station (Gallons)
1925 ¹	12, 644	1, 510, 347	327
1923 ²	³ 9, 680	⁴ 1, 155, 532	⁵ 327

¹ F. T. C. report.

² Estimated.

³ Obtained by dividing total volume sold by assumed volume per station.

⁴ Represents 19% of the 83% of total domestic demand which this group marketed direct through its own stations.

⁵ Assumed unchanged from 1925.

It is believed that the 41 standard and independent companies operated virtually all of the chain service stations in 1925 and in 1923. The additional steps taken to arrive at estimates of employment and payrolls of chain service stations in 1923 follow.

Year 1923

Number of Chain Ser. Sta.....	9, 680
Employees per Station.....	¹ 2.6
Total employees.....	25, 160
Average Annual Earnings.....	² \$1,200
Total Payroll (\$1,000's).....	\$30, 200

¹ Employees per station in 1929 averaged 2.16, on the basis of Retail Census of Distribution data; no source available for 1923. However, on the basis of the change shown in output per station in the state of Ohio between 1923 and 1929, it is indicated that employees per station were slightly higher in the earlier year, probably between 2.5 and 3.0 persons. An intermediate figure of 2.6 persons was taken as the average employment per station in 1923.

² Average annual earnings of service station employees in 1923 appear to have been about the same as in 1929, when average annual earnings of part-time and full-time service station workers was \$1,251.

WHOLESALE MARKETING DIVISION

Sources:

1. Wholesale Census of Distribution—1929 and 1935.
2. F. T. C. Report "Prices, Profits, and Competition."
3. "Report on Marketing Facilities * * *," P. A. B. to the Cole Committee.
4. Statement of H. H. Anderson (data for 18 major companies) "The Petroleum Industry—Employment and Working Conditions," tables 4-e and 4-f.

Year 1937

Method:

Reported data from the wholesale Census of Distribution 1935 (adjusted to include an estimated payroll figure for employees engaged at commission bulk tank stations which the Census did not include) were carried forward to 1937 by use of the "Anderson Report" on wholesale operations of 18 major companies. The data employed and results obtained follow:

Wholesale census of distribution—Petroleum products

	Number of Establishments	Number of Employees Including Commission Stations	Compensation (\$1,000's)	Domestic Demand for Gasoline (1000 Bbls.)	Barrels Handled per Employee
1935	28, 197	1 114, 792	1 190, 580	434, 810	3, 790
1933	28, 455	108, 979	173, 813	380, 494	3, 490
1929	23, 008	110, 074	222, 198	382, 878	3, 480

¹ Includes estimate for number of employees at commission bulk tank stations.

H. H. Anderson report for 18 major companies

	May				
	1938	1936	1934	1933	1929
Number of Employees:					
All Marketing	52, 041	60, 013	84, 270	68, 330	68, 420
Retail Service Station	9, 627	17, 742	37, 607	27, 680	19, 692
Wholesale	42, 414	42, 271	47, 263	40, 653	48, 728
Payrolls—\$1,000's:					
All Marketing	8, 346	8, 680	10, 346	8, 883	10, 190
Retail Service Station	1, 110	2, 023	3, 856	2, 918	2, 521
Wholesale	7, 236	6, 657	6, 510	5, 965	7, 669
Avg. Weekly Earns. per Emp.—\$	17. 05	15. 75	13. 80	14. 70	15. 75

To reach a 1937 figure of number of employees, the 44,767¹ persons engaged in 1935 in the wholesale marketing activities of the major companies included in the "Anderson Report" were deducted from the total of 114,792 persons reported by the Census, leaving 70,025 persons engaged by other than the "Anderson" group. The "Anderson" group declined to 42,414 in 1937 (really May 1938), due to operation of the principle of the Iowa Plan in wholesale as well as retail marketing and to other factors such as increasing size and efficiency of tanks, trucks, etc., whereas the "other" group is believed to have increased just about enough to offset the "Anderson" group decline, so that the total personnel in the division in 1937 was about the same as in 1935.

To obtain an estimate of 1937 payrolls, it was assumed that the increase over 1935 in average dollar earnings of employees in the wholesale marketing division of the oil industry was somewhat more than 5% (average earnings of persons in all types of wholesale trade, Bureau of Labor Statistics data, increasing about 6%). This 1937 average earnings figure was applied to the estimated number of persons engaged.

¹ 1935 interpolated from 1936 and 1934 figures.

Wholesale marketing of petroleum products

	1935	1937	% Change
Employees:			
Census of Distribution.....	114, 792	¹ 115, 000	+0. 2
"Anderson" Group.....	44, 767	42, 414	-5. 3
"Other".....	70, 025	¹ 72, 586	+3. 7
Average Earnings per Employee—All Groups.....	\$1, 660	\$1, 750	+5. 4
Total Compensation—All Groups (\$1,000's).....	190, 580	201, 200	+5. 6

¹ Estimate.*Year 1929*

Source: Wholesale Census of Distribution, 1929—which showed employment and payrolls involved in the distribution of petroleum products of—

Number of Employees.....	110, 074
Compensation (\$1,000's).....	222, 198
Average earnings per employee—\$.....	2, 019

Year 1923

Sources:

1. F. T. C. Report—"Prices, Profits and Competition, Petroleum Industry."
2. Census of Wholesale Distribution, 1929.
3. P. A. B. "Report on Marketing Facilities * * *" to the Cole Committee.

Method: According to the F. T. C. report, 41 Standard and independent marketing companies, representing 83% of the total domestic gasoline sales, had 15,128 bulk stations as of 6/30/36. This group of companies was assumed to be comparable to the group of integrated and non-integrated companies reporting to the Cole Committee, having 17,972 bulk plants and terminals as of 1/1/30. It was further assumed that the increase in bulk plants from 1923 to 1926 was about equal to the indicated increase of about 3,000 between 1926 and 1929. The trend in number of bulk plants was estimated as follows.

Number of bulk plants for group of companies

1923.....	12, 000
1926.....	¹ 15, 128
1929.....	² 17, 972

¹ F. T. C. Report—41 Standard & independent cos.² Cole Committee Report.*Total bulk plants*

1923.....	¹ 13, 150
1926.....	¹ 16, 550
1929.....	² 19, 611

¹ Estimate based on change shown for large sample groups in the table above.² Census of Distribution—1929.*Total wholesale establishments marketing petroleum products*

	1929 ¹		1923	
	# of Establishments	% of Total	# of Establishments	% of Total
Bulk Plants.....	19, 611	85. 2	² 13, 150	85. 0
Other.....	3, 397	14. 8	² 2, 320	15. 0
Total.....	23, 008	100. 0	15, 470	100. 0

¹ Census of Distribution.² Estimate—see development in two preceding tables.

Employment & compensation in wholesale marketing of petroleum products

	1929 ¹	1923 ²		1929 ¹	1923 ²
Total Establishments.....	23,008	15,470	Persons per Establishment...	4.8	4.8
Total Number Employed....	110,074	74,256	Total Compensation (\$1,000's)	222,198	* 126,235
			Avg. Ann. Earnings per Employee.....	2,019	* 1,700

¹ Census of Wholesale Distribution—1929.² Estimates based on available source material.³ Average earnings per employee in 1923 was taken at the 1937 rate of about \$1,700; total compensation is the product of estimated average earnings and number of employees.

SEPTEMBER 26, 1939

Oil industry employees ¹

	Year 1937	Year 1929	Year 1923
Crude Producing ²	103,517	135,364	128,933
Refining ³	98,450	94,393	82,759
Pipe Line ⁴	29,560	28,963	29,221
Marine.....	13,840	13,320	12,000
Chain Service Station ⁵	17,140	64,950	25,160
Wholesale Marketing ⁶	72,586	110,074	74,256
	335,093	447,064	352,329

¹ Does not include proprietors or firm members.² Wage earners' administrative, supervisory, technical, and clerical employees in the oil fields.³ Salaried officers and employees and wage earners; does not include employees of central administrative offices.⁴ Salaried officers and employees and wage earners.⁵ Paid employees; does not include active proprietors or firm members.⁶ All paid employees, including corporation officers, other executives, salesmen, all office, warehouse, delivery and other employees.

SEPTEMBER 20, 1939

Compensation paid to oil industry employees

[\$1000's]

	Year 1937	Year 1929	Year 1923
Crude Producing.....	166,615	244,281	211,837
Refining.....	176,808	164,755	138,402
Pipe Line.....	55,100	57,100	43,000
Marine.....	16,741	¹ 17,283	13,314
Chain Service Station.....	21,185	81,239	30,200
Wholesale Marketing.....	201,200	222,198	126,235
Total.....	637,649	¹ 786,856	562,988

¹ Revised.

SEPTEMBER 22, 1939

PROFITS—RATE OF RETURN ON NET WORTH—CHART #18

I. ALL INDUSTRY

A. Sources of yearly averages:

1. 1923-1926—The witnesses's compilation for a group of 132 companies. See attached list for companies included in this group. Figures are percent return on net worth.

2. 1927-1929—Standard Statistics 446 companies, including 399 miscellaneous industrials, 22 utilities, 25 railroads. See attached bulletin. Figures are percent return on net worth.

3. 1930-1938—National City Bank compilation, percent return on net worth for large group of companies.

B. Source of quarterly estimates:

1. Standard Statistics index of quarterly earnings, based on net available for preferred and common shares, applied to yearly averages from above sources.

II. MANUFACTURING INDUSTRY

A. Sources of yearly averages:

1. 1923-1926—Ralph C. Epstein, "Industrial Profits in the United States," page 56; data for 2,046 manufacturing corporations; figures are "Percentage of Income to Capitalization."

2. 1926-1928—Standard Statistics 399 industrial corporations; figures are "percent earned on invested capital."

3. 1929-1938—National City Bank compilation; figures are percent of return on net worth.

B. Source of quarterly estimates:

1. Standard Statistics index of quarterly earnings for 120 industrial companies, based on net available for preferred and common dividends, applied to yearly averages from above sources.

III. OIL INDUSTRY

A. Sources of yearly averages:

1. Years 1923-1938—The witnesses's compilations for large groups of reporting oil companies covering approximately 85% of the refining, 90% of the pipe line, 70% of the wholesale marketing and 85% of the American tanker (tonnage) activity of the industry and about 55% of the crude producing.

B. Source of quarterly estimates:

1. Annual rates of profit from above source converted to quarterly bases through the application of quarterly data on movements of volumes of demand and price in each of the years shown.

SEPTEMBER 21, 1939

DERIVATION OF REFINERY VALUE OF PRODUCTS PER BARREL OF TOTAL OILS RUN¹

Step 1.—Each week the high and low National Petroleum News quotations are averaged² for the products shown in the attached table.

Step 2.—The average refinery price for each major product (e. g., gasoline), for each of seven United States refinery districts, is determined from the items in step one, by calculating the weighted average quotation of the items for each district. The weights are those shown in brackets after the items in the attached table.

Step 3.—For each major product the estimated average realization for each refinery district is brought into an average for all districts by weighting the price of each district by the volumetric output³ of each district.

Sub-step 3a.—Special treatment of gasoline is requisite to make allowance for the enhancement of values by inclusion of certain premiums. These vary from time to time. In current figurations, the composite determined by step three is assumed to represent 94.82% of all gasoline. The remaining 5.18% is priced at 1.5¢ higher. The weighted sum of these two items provides the estimated average realization for all gasoline in the United States.

Sub-step 3b.—For lubricating oils, quotations from five districts, instead of seven, are taken as shown in step one. The price composite as determined from the weighting of these five area composites is further increased by 1.75¢ per gallon to allow for the price of lubricating oils of refining districts for which current quotations are unavailable. The significance of this factor, 1.75¢, will appear shortly.

Sub-step 3c.—Further modification of the procedure is made for waxes for which an average quotation is calculated from the averages of 122/24 Pennsylvania Crude Scale Wax and 124/26 Pennsylvania Crude Scale Wax, both white.

Step 4.—To this point, there have been determined for each of six major product groups the estimated average realizations. These are now brought together into a composite of the group by weighting each product's average realization by the three months' moving average output of that product from all United States refineries. The resultant is the average value of the products in this group per barrel of total oils run.

¹ Total oils run include crude run to stills plus natural gasoline.

² Occasionally the "highs" are extraordinarily above the "lows". At such times, the average of the high and the low is replaced by a figure equal to the low plus a differential based upon experience, usually about ¼¢ or ⅜¢ per gallon.

³ Volumetric outputs are determined from Bureau of Mines monthly reports and carried forward on a three months' moving average.

Step 5.—The value determined at the conclusion of step four represents only the unit value of the composite of the six product groups. It must be adjusted to make due allowance for the value of miscellaneous other products. The proportion of the total value of all products represented by this value of the six product groups varies from time to time. Currently, it is estimated at 96.65% of the total. This factor is determined by comparing the value of the six product groups as reported by the Bureau of the Census biennially with the total value of products reported by the Bureau.

Check.—Once in every two years the annual value of products, as determined by the foregoing weekly and monthly compilations, is compared with values determined from data published by the Bureau of the Census. Adjustments must be made to the latter figures on account of the value of packages. By this means, the results of the weekly and monthly calculations are anchored to the only authoritative sources of information on this subject. This check provides the means, also, for modifying the specific items and weights used in the several steps.

Only by following the foregoing procedure has it been possible to obtain estimates of average values of products upon which reasonable reliance could be placed.

Table I

Refinery District	Gasoline	Kerosene	Gas Oil & Distillate	Residual Fuel	Lubricating Oil
East Coast.....	U. S. Motor 60/64 Oct. N. Y. Harbor	N. Y. Domestic Market W. W.	#2 F. O. N. Y.	Bunker C N. Y. Domestic	Bright Stock ¹ 600 S. R. Pa. N. Y. 650 S. R. Pa. N. Y.
Appalachian.....	58/62 U. S. Motor	46 W. W. Penna.	26/40 F. O. W. Pa.		150 Vis. #225 P. P. } Avg. (40) 200 Vis. #225 P. P. } 600 S. R. } 650 S. R. } Avg. (30) Brt. Stk. #8 25 P. P. }
Oklahoma-Kansas.....	U. S. Motor 62 & Below (20) 70/72 Oct. Regular (60) 60/62 400 E. P. (20)	#1 White Oil	U. G. I. Gas Oil (30) 24/26 F. O. (70)	14/16 F. O.	86-110 #2 150 Vis. #3 Pale 200 " #3 " } Avg. (45) 250 " #3 " } 280 " #5 Red 600 S. R. Olive (10) Brt. Stk. 150-160 E } Avg. (45) " 150-160 D }
North Texas.....	U. S. Motor 62 & Below (20) 70/72 Oct. Reg. (80)	#1 White Oil	U. G. I. Gas Oil (30) 24/26 F. O. (70)	14/16 F. O.	
N. Louisiana-Arkansas.....	U. S. Motor 62 & Below	#1 White Oil		10/14 F. O.	
California.....	54/58 U. S. Outside State (85) 400 E. P. Exp. (15)	40/43 W. W. Dom. (35) 38/40 W. W. Exp. (65)	Diesel F. O. (Los Angeles)	Heavy F. O. (70) Grade C Exp. (30)	100 Vis 2 1/2-3 Pale 200 " " " " } 200 " 3-4 " " } Avg. (100) 550 " 4-5 Red 300 " 5-6 " " 500 " 5-6 " " 700 " 6 1/2 "
Gulf Coast.....	60/64 Oct. Dom. Ship (70) U. S. Motor Ex. (15) 60/62 400 E. P. (5) 64/66 375 E. P. (10)	41/43 W. W. Dom. 41/43 P. W.	Below 43 Diesel	Bunker C	200 Vis 2-3 Pale 200 " 5-6 Red Exp. 500 " 2 1/2-3 1/2 Pale 500 " 5-6 Red Exp. } Avg. (100) 300 " 5-6 Red 500 " 5-6 Red 750 " 5-6 Red

¹ Bright Stock price employed two times; average of four quoted prices is given a 40% weighting; half of the average of four quoted prices is weighted 40% to allow for the lower grades of oils produced for which no posted prices are available.

² Bright Stock #8, 25 P. P. considered separately for additional 30% weight.

DERIVATION OF ESTIMATES OF NET INTEREST PAYMENTS

Estimates of net interest payments of the Oil Industry were tied into figures obtained from the Bureau of Internal Revenue for the Oil and Gas and Petroleum Refining Industries similar to those appearing in Statistics of Income for larger segments of economic activity. In 1933 interest paid out by the Industry was \$104,740,000 while interest received was indicated to have been \$42,580,000, leaving a net interest payment of \$62,160,000. The net balance was equivalent to 6.3% on the \$986,931,000 of bonds and mortgages reported by the Bureau for the Oil and Gas and Petroleum Refining Industries.

It was assumed that the long-term debt of the corporate fraction of the industry reporting to the Bureau represented about 90% of the long-term debt of the entire industry and, therefore, the long-term debt of the industry approximated \$1,096,900,000 in 1933. Figures from the Bureau were not available for either 1923 or 1937 and hence the long-term debt for these two years was obtained by extrapolation. This process consisted in relating the Bureau's figure for 1933 after adjustment for the non-corporate fraction of the industry to the movements of long-term debt of a group of 24 oil companies for which figures were available over the period being studied. This process resulted in an estimate of long-term indebtedness of \$500,200,000 for 1923 and \$1,082,500,000 for 1937. An interest rate of 8% for 1923 and 6% for 1937 were assumed, the 6% figure tying in with the slightly higher figure of 6.3% for 1933, the derivation of which was described above. The interest estimate therefore became:—

1923.....	\$500, 200, 000 × 8% = \$40, 016, 000
1937.....	\$1, 082, 500, 000 × 6% = \$64, 950, 000

Determination of dividend payments, entrepreneurial withdrawals and business savings of the oil industry.

[\$1000's]

1923

INVESTMENT

	Total	Long-Term Indebtedness	Net Worth
Corporate Form.....	4, 871, 000	400, 000	4, 471, 000
Entrepreneurial.....	960, 000	100, 000	860, 000
	5, 831, 000	1 500, 000	5, 331, 000

PROFIT

	Rate	\$1000's
Corporate Form.....	6 28	280, 780
Entrepreneurial.....	14. 9	128, 320
	2 7. 7	409, 100

DIVISION OF PROFITS

	Dividends	Business Savings
Corporate Form.....	205, 530	75, 250
Entrepreneurial.....	96, 520	31, 800
	302, 050	107, 050

¹ See detail on interest.

² 1923 reported profits for 95 companies indicated rate of return equal to 6.28% of net worth. Net income of a group of 79 independent producers indicated to be 14.2% on investment. (Calculated net worth basis 14.9%.)

³ Reported dividend payments of 24 oil companies indicated payments equal to 73.2% of net income. Assumed entrepreneurial withdrawals equal to 75% of net income.

1937

INVESTMENT

	Total	Long-Term Indebted- ness	Net Worth
Corporate Form	6,320,000	920,600	5,400,000
Entrepreneurial	1,570,000	160,000	1,410,000
Total	7,890,000	¹ 1,080,000	6,810,000

PROFIT

	Rate	\$1,000's
Corporate Form	10.0	540,000
Entrepreneurial	13.5	190,200
Total	² 10.7	730,200

DIVISION OF PROFITS

	Dividends	Business Savings
Corporate Form	270,000	270,000
Entrepreneurial	142,690	47,510
Total	³ 112,690	317,510

¹ See details on interest.² 1937 reported profits for 92 companies indicated rate of return equal to 10% on net worth; estimated profits for entrepreneurial operation (principally crude production) approximately 13.5%.³ Reported dividend payments of 24 oil companies indicated payments equal to 50% of net income. Assumed entrepreneurial withdrawals equal to 75% of net income.

The following letter is included at this point in connection with testimony on p. 7244, supra.

J. HOWARD PEW
President

SUN OIL COMPANY,
Philadelphia, November 22, 1939.

TEMPORARY NATIONAL ECONOMIC COMMITTEE,
Apex Building, Washington, D. C.
(Attention: Mr. J. R. Brackett, Executive Secretary.)

GENTLEMEN: During the course of the testimony which I presented before the Temporary National Economic Committee I was asked if the Sun Oil Company had ever taken the initiative in changing the posted price of crude oil in the various fields in which we make purchases. Upon investigation of our records we do find instances of the Sun Oil Company having taken the initiative in changing the posted price of crude oil

On May 6th, 1933, Sun Oil Company raised the price of East Texas crude from 10¢ per barrel to 25¢ per barrel. The Gulf and Texas Companies met this increase on May 10th, and the Humble raised its posting effective May 13th, 1933. On July 7th, 1933, Sun Oil Company raised its posted price for East Texas crude from 50¢ to 75¢ per barrel. None of the other major companies would meet this increase, therefore, Sun Oil Company reduced its posting to 50¢ per barrel, effective August 3rd, 1933. On August 24th, 1933, the Humble and Atlantic Companies raised the price of East Texas crude from 50¢ to 60¢ per barrel. This increased price was met by The Texas Company on August 25th. Sun Oil Company, on August 25th, 1933, raised its posted price for East Texas crude from 50¢ to 75¢ per barrel. This increased price was met by other major companies on September 6th, 1933.

Discussion of members of the Committee also involved the Sun Oil Company's selling of crude oil at a loss. Investigation of our records in this respect indicates that in some instances crude oil sales in certain districts resulted in a profit, while in others a loss was sustained. For example, in 1938 our crude oil production and the sale thereof in our West Texas District resulted in a loss of \$.2064 per barrel, while in our New Mexico District we experienced a profit in the same year of \$.4841 per barrel. These cost figures however are only approximations as costs vary considerably depending upon the arbitrary method of cost determination used.

The practice of the industry is to produce crude oil and sell this oil to others when the producing company does not have a refinery demand for the grade and type of oil in question. The oil must be produced, first to satisfy the interest of the land owner, and secondly, it is hoped that eventually production will be at such volume or cost as to be profitable.

I trust this data will be of value in the Committee's consideration of the Petroleum Industry.

Yours very truly,

J. HOWARD PEW.

RGD/DH

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